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Report to the Chairman, Committee on Veterans' Affairs
United States Senate

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# FINANCIAL MANAGEMENT

# An Assessment of the Veterans Administration's Major Processes

ORIGINAL

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Volume 1 of 2

G.M.

GAO

**United States**
**General Accounting Office**
**Washington, D.C. 20548**

**Accounting and Financial**
**Management Division**

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June 27, 1986

The Honorable Frank H. Murkowski
Chairman, Committee on Veterans' Affairs
United States Senate

Dear Mr. Chairman:

As requested in the August 10, 1984, letter from the former Chairman of the Committee on Veterans' Affairs, this report describes and assesses the major financial management processes of the Veterans Administration, focusing on medical care and major construction planning and project ranking. Prior to the issuance of this report, we briefed the Committee staff on several occasions on the matters discussed in this report. We also testified before the Committee on our findings regarding VA's medical care planning and major construction processes on April 10, 1986.

Our review showed that the design of VA's financial management processes is basically sound but that VA lacks reliable cost and workload data to support those processes. The report contains recommendations to the Administrator of Veterans Affairs for improving both VA's financial management processes and the data that support them.

This is a two-volume report. Volume 1 describes and analyzes the major strengths and weaknesses of the Veterans Administration's major financial management processes and the primary information they use. It is based on information from fiscal years 1984, 1985, and 1986. The report focuses largely on health care and the major construction process (the planning, design, and construction of health care projects costing $2 million or more). Volume 2, under the same title, provides more detailed descriptions and flowcharts of the processes for fiscal year 1986.

We are also sending copies of this report to the former Chairman, Senate Committee on Veterans' Affairs; the Director, Office of Management and Budget; interested congressional committees; and other interested parties. Copies will also be made available to others on request.

Sincerely yours,

Frederick D. Wolf
Director

# Executive Summary

## Purpose

By the year 2000, the Veterans Administration expects the number of veterans 65 and older to triple to 9 million, and those 75 and older—who generally require the most health care services—to increase almost 500 percent to 4 million. At the request of the former Chairman, Senate Committee on Veterans' Affairs, GAO studied VA's Central Office financial management processes, focusing primarily on health care and major construction.

This report is based on a model that considers financial management in four sequential and linked phases: planning and programming, budgeting, budget execution and accounting, and audits and evaluations. The review's purpose was to (1) identify and describe VA's major financial management processes and the primary information on which they rely; (2) identify and assess the major financial management implications, both actual and potential, of any weaknesses in this information; (3) determine if and how VA ranks the needs of veterans with service-connected health care problems in medical care and construction planning; and (4) identify and assess the processes VA uses to rank major construction projects.

## Background

VA's basic mission is to meet the financial, educational, and health care needs of American veterans and their dependents. About 59 percent of its fiscal year 1986 budget request is used for entitlement programs, which require VA to provide benefits to all eligible veterans who apply. Health care (including major construction projects) is VA's largest nonentitlement program—about 35 percent of the budget.

Under the law existing at the time of our review, eligible veterans had access to VA health care on a space-available basis, but veterans with service-connected disabilities had priority. Service-connected veterans will continue to receive priority for health care under legislation enacted in 1986. (See chapter 1.)

VA plans to overhaul most of its financial management systems. The Department of Medicine and Surgery also has underway three pilot projects designed to develop or test systems that can provide the integrated per patient clinical workload and cost data needed to effectively manage the medical care program. (See chapter 2.)

## Results in Brief

Overall, VA has the basics of a sound financial management process for its Central Office operations. However, VA does not have reliable, timely,

and useful cost and workload information to support this process. VA cannot determine the costs of treating a patient in a VA hospital because its systems do not collect per patient clinical or cost data. Therefore, VA managers do not have the information they need to determine if those costs are reasonable or can be reduced without affecting care.

VA does not systematically identify and consider the needs of service-connected veterans in either its medical care or construction planning and budgeting.

The major construction planning process needs better coordination and focus because VA does not produce a national health care strategy, with clearly defined priorities, to guide construction planning and prioritization. At the Congress' request, VA has developed a new process for ranking construction projects, but it depends largely on unreliable information from the medical care planning process.

## Principal Findings

VA's Central Office financial management processes can be used to establish multiyear agency and program goals and objectives and to review resources requested to attain those goals. VA also establishes annual financial and program operating plans, reports monthly to top management on planned versus actual results, and holds midyear and end-of-year reviews of program and financial results. But, VA has not effectively implemented the processes, because it does not (1) currently set realistic and measurable goals and objectives for its medical care and construction programs and (2) does not have the information to adequately assess the results if it did.

### The Data Used

VA's financial management processes rely primarily on six systems for decision-making information. These systems do not provide reliable information that is timely, useful for financial management, comparable between VA hospitals, or consistent over time. This is partly due to VA's automated data processing problems and partly due to the systems' not being designed to provide the information that VA needs to carry out and report on the financial aspects of its operations. (See chapters 1 and 2.)

### Medical Care Issues

VA has developed a structured planning/ programming process for health care, but that process has not yet produced a realistic, national health care strategy for establishing both budget and construction priorities.

The illnesses for which patients are treated, not simply their numbers, determine the clinical resources used and thus the cost of treating any particular patient caseload. Recognizing this, VA has implemented a system that roughly measures hospital efficiency and allocates a growing portion of hospital operating budgets based on the types of illnesses for which patients are treated. But, VA's financial management systems do not provide the per patient clinical and cost information necessary to make such a system fully operational. Consequently,

- Hospitals are reimbursed a specific amount for each type of illness they treat, but do not have information about their actual costs of treating any specific patient or illness to help identify ways of controlling those costs.
- VA cannot readily track patient drug use and doctor prescription patterns, thus making it difficult to properly manage drug usage and costs, one of the fastest rising costs in VA medical care.
- VA's primary medical program cost reports used for planning, budgeting, and budget execution are based on unreliable, quarterly estimates, not actual costs.

The Decentralized Hospital Computer Program, now being installed in VA hospitals, should provide much of the per patient clinical data now missing, but will not provide costs. VA is trying to improve the program cost estimates. (See chapter 2.)

## Construction Issues

VA's major construction planning and prioritization process has no clear focal point of accountability below the VA Administrator. The newly developed prioritization methodology provides a clearer and more objective basis for ranking projects, but can be no better than the data on which it relies. Those data—from VA's medical care planning process and from the facility engineer's assessment of the physical condition of each VA facility—are currently inadequate for effective construction planning and prioritization. (See chapter 5.)

A consulting firm, with whose major conclusions VA concurs, identified many other problems in the construction process, including project design. (See appendix II.) VA is considering ways of implementing some of the firm's recommendations.

## Recommendations

GAO recommends that the Administrator of VA take the following actions to improve both VA's financial management processes and the reliability and usefulness of the information on which they rely:

- Move expeditiously to develop a system to capture the per patient clinical and cost data necessary for effective health care management.
- Comprehensively study the financial management information needs in VA—both workload and cost—for developing automated data processing plans and assessing alternative hardware and software for meeting these information needs.
- Build on recent improvements in the medical care planning process to develop a coherent, national medical care strategy, with clear medical care priorities, that addresses the needs of veterans with service-connected health care problems, for use in construction planning and prioritization.
- Develop a phased strategy, with clear milestones for improving the construction process, its linkage to medical care planning, and the data on which the construction process relies.

## Agency Comments

VA was asked, but did not provide, formal comments on this report. However, VA officials did provide clarity points which have been incorporated where appropriate.

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## Abbreviations

| | |
|---|---|
| ADP | automated data processing |
| AMIS | Automated Management Information System |
| BIRLS | Beneficiary Identification and Records Locator Subsystem |
| CALM | Centralized Accounting for Local Management |
| CMDE | Casemix Direct and Education (costs) |
| DHCP | Decentralized Hospital Computer Program |
| DM&S | Department of Medicine and Surgery |
| DRG | Diagnostic Related Group |
| DXLS | diagnosis (responsible for major) length of stay (in hospital) |
| FEPAC | Facility Engineering, Planning and Construction Office |
| GAO | General Accounting Office |
| HCF | Health Care Facility |
| HCFS | Health Care Facility Service |
| HSR&D | Health Services Research and Development Center |
| ICD-9-CM | International Classification of Diseases—9th revision (1979) clinical modification |
| ISC | Information Systems Center |
| MEDIPP | Medical District Initiated Program Planning |
| NHCU | Nursing Home Care Unit |
| NPTF | New Patient Treatment File (for inpatient records beginning with fiscal year 1984) |
| OMB | Office of Management and Budget |
| PAID | Personnel Accounting and Integrated Data |
| PTF | Patient Treatment File (for inpatient records prior to 1984) |
| RCS 10-141 | Report of Medical Care Distribution Accounts |
| VA | Veterans Administration |
| VAMC | Veterans Administration Medical Center |

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# Introduction

As the Congress and the President struggle to reduce the large, annual federal budget deficits, the Veterans Administration (VA), like many other federal agencies and programs, is experiencing little or no real budgetary growth. During fiscal year 1985, for example, VA's medical care budget grew at less than half the national medical care inflation rate, while the number of veterans eligible for and receiving VA medical care increased and is likely to continue to do so. To maintain or minimize the reduction of the level of medical services to veterans, and to identify and implement potential cost efficiencies, VA managers need reliable, useful financial information on the current costs of VA medical programs and services and on the composition of those costs.

The VA is the largest independent agency in the federal government and its third largest employer. VA's fiscal year 1986 appropriation of $26.3 billion provides education, housing, income, insurance, burial, and medical benefits to some 28 million eligible veterans, as well as their eligible spouses, survivors, and dependents.

The Senate Committee on Veterans' Affairs requested that we conduct a study of the major strengths and weaknesses of the VA's Central Office financial management processes. The purposes of the review were to

- identify and describe VA's major financial management processes, the primary sources of information on which those processes rely, and how they are used;
- determine if and how VA considers the needs of service-connected veterans in medical care and construction planning;
- identify and assess the processes VA uses to prioritize major construction projects; and
- identify and assess the major financial management implications, both actual and potential, of any reported weaknesses in the accuracy, reliability, consistency, comparability, and usefulness of the information on which VA's financial management processes rely.

Timely and accurate financial management information could help VA physicians and managers answer health care cost control questions such as the following:

- How many additional veterans, on average, could VA treat in its hospitals by reducing the average length of stay by 20 percent? How can this be done most appropriately?

- What is the additional cost to VA of keeping veterans in VA hospitals when more appropriate, less expensive health care facilities, such as nursing homes, are not available?[1]
- Is the institution of a Diagnosis Related Group (DRG) methodology for allocating VA hospital budgets increasing hospital efficiency, as intended? Is it resulting in increased efficiency at the expense of the quality of VA health care?
- How much revenue could VA realize by billing the insurers of veterans who have private health insurance and are treated in VA hospitals?[2]

The ability to answer these questions is essential to identifying ways of treating more eligible veterans within existing resources and reducing VA health care costs without reducing the quality of care VA provides. In this report, we address how sound financial management processes and information can provide VA with the information to manage health care costs effectively, as well as much of the clinical information needed to assess the quality of care.

This chapter provides background information about the environment in which VA operates, its programs and budget, and the challenges it faces in serving the nation's veterans and their families. VA has recognized that it must improve its financial information and processes and has taken steps to do so. We briefly review many of its improvement efforts in this chapter and discuss several in detail later in the report. Also in this chapter, we explain the methodology we used in this study and the relationship of our work on VA's major construction projects to work by the firm of Booz, Allen & Hamilton.

[1]GAO recently reported that VA could reduce the average length of stay in its hospitals by about 20 percent through better patient management practices. Stays could be reduced an additional 23 percent if less costly levels of care, such as nursing homes, were available. See Better Patient Management Practices Could Reduce Length of Stay in VA Hospitals (GAO/HRD-85-52, August 8, 1985).

[2]Another GAO report estimated that about 18 percent of the veterans in its sample universe of 345,000 episodes of care (the VA term for patients who must be admitted to hospitals or nursing homes for care) for veterans without service-connected disabilities had private insurance. The care provided such veterans cost VA between $188 million and $284 million, based on VA's national average per diem rates for care. See Legislation to Authorize VA Recoveries From Private Health Insurance Would Result in Substantial Savings (GAO/HRD-85-24, February 26, 1985).

## VA Financial Management Operates in a Dynamic Environment

Budgetary constraints are only one element in the dynamic political, budgetary, and organizational environment within which VA, like all federal agencies, must operate. Other elements include the following:

(1) The veteran population varies widely in age, interests, and demands; each segment seeks to get VA to be responsive to its needs.

(2) Members of the Congress also have widely varying expectations of VA, depending upon their views of the appropriate roles of VA in serving the nation's veterans and upon the interests of their constituents. Consequently, the Congress does not always provide consistent guidance to VA on the priorities it expects VA to follow.

(3) A fluctuating budgetary environment exists, in which budgetary growth is neither necessarily steady nor predictable.

(4) Top-level administrators usually have relatively short terms in office; their managerial styles and program interests usually vary.

(5) The decision-making process within VA emphasizes consensus and participation in decisionmaking by a variety of offices and groups in the agency.

Our management reviews have identified some of these factors—divergent congressional and constituent interests, fluctuating budgets, and short tenure of top-level administrators—in at least two other federal departments.[3] VA's decision-making process, however, may be unique. All these elements are indicative of the complex environment in which effective federal financial management must operate. To function well within this environment, VA needs flexible, managerially useful information that serves the decision-making needs of VA officials at all levels, the President, and the Congress.

## Overview of VA Programs and Budget

VA operates two basic types of programs for veterans: benefit and medical care. Benefit programs include compensation, pensions, readjustment pay, burial, and home loan mortgage guarantees. VA's fiscal year 1986 budget request included about $15.6 billion for these programs, 59 percent of its total appropriations request. Medical care programs

[3]See Increasing the Department of Housing and Urban Development's Effectiveness Through Improved Management (GAO/RCED-84-9, Vols. I and II, January 10, 1984) and Strong Leadership Needed To Improve Management at the Department of Labor (GAO/HRD-86-12, October 21, 1985).

include those services provided in both VA facilities and in private facilities on a contract basis. VA requested about $9.3 billion (35 percent of its budget) for medical care programs for fiscal year 1986, plus $417 million for major construction projects, almost all of which were for medical care.

Because of the specific interest of the Senate Veterans' Affairs Committee, and because most VA benefit programs are entitlements, our work focused on medical care and major construction projects. Entitlements require VA to provide benefits to veterans who meet the eligibility standards defined by law. Budgeting for these programs, therefore, is largely a matter of identifying the eligible population and determining the funds necessary to provide benefits to all eligible veterans who have applied and are expected to apply during the budget year. An adjustment would also be made for the number of veterans expected to leave the benefit rolls during the fiscal year.

## VA Medical Care Is the Nation's Largest Health Care System

In fiscal year 1986, the VA health care system includes 172 hospitals, 117 nursing homes, 229 outpatient clinics, and 16 domiciliaries.[4] These facilities are organized into 27 medical districts which comprise 7 regions.[5] The medical care programs employ the overwhelming majority of VA's personnel: more than 200,000 of VA's estimated fiscal year 1986 total average employment of 220,783 people. (See figure 1.1.)

VA provides acute medical, surgical, and psychiatric care for both inpatients and outpatients; intermediate hospital, nursing home, and domiciliary care; plus a range of special programs and professional services, such as hospital-based home care and hospice care. In fiscal year 1986, VA estimates it will provide a total of 18.3 million outpatient medical visits, 317,000 dental visits, and 1.4 million episodes of inpatient care (the VA term for patients who must be admitted to hospitals or nursing homes for care).

At the time our study was completed, VA medical care was available to eligible veterans on a space-available basis. Veterans were admitted on a priority basis as follows:

[4]Most of VA's medical facilities are organized into medical centers. VA's system included 160 such centers in fiscal year 1984. A medical center may consist of one or more hospitals, one or more outpatient clinics, a nursing home, and a domiciliary. Five outpatient clinics and one domiciliary are independent of any medical center. Our report uses the terms VA medical center and VA hospital interchangeably.

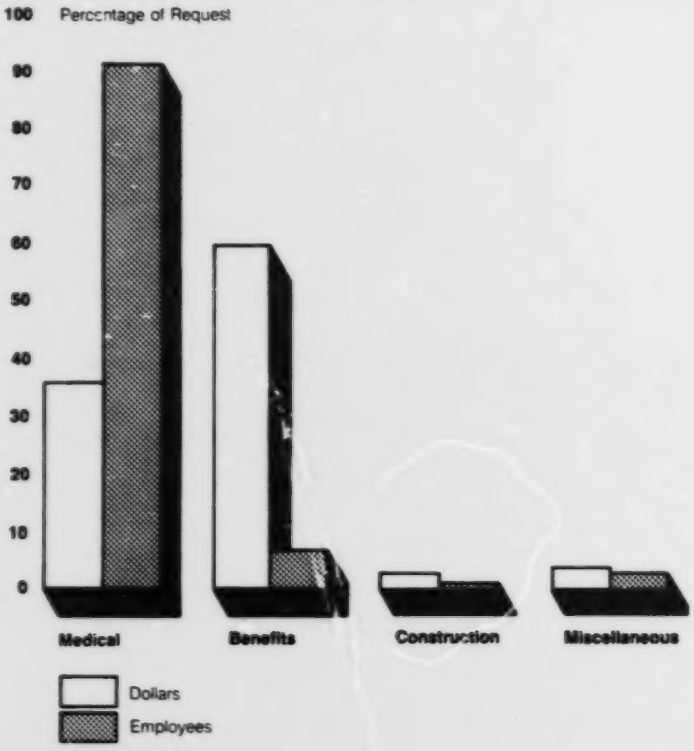
[5]Prior to a 1985 reorganization by VA's Chief Medical Director, there were 28 districts and 6 regions.

- any veteran who requires treatment of his/her service-connected conditions;
- the service-disabled who request care for nonservice-connected conditions (we refer to both categories in this report as "service-connected veterans"); and
- certain categories of nonservice-connected veterans, such as those who are unable to defray the costs of their care (referred to in this report as the "medically indigent"[6]) or those 65 or older.

Nearly 70 percent of the veterans discharged from VA hospitals in fiscal year 1984 had no service-connected disabilities.

[6]Prior to the April 1986 enactment of the Consolidated Omnibus Budget Reconciliation Act of 1985, the Veterans Administration Health Care Amendments of 1980 (Public Law 96-330) provided that veterans who received a VA pension, had a service-connected disability, or were eligible for Medicaid were presumed to be unable to defray their medical expenses. (See footnote 7 to this chapter for a discussion of the changes the 1985 act implemented.) Throughout this report, we have used the term "medically indigent" to refer solely to those nonservice-connected veterans whose financial resources were insufficient to cover the costs of their care.

Figure 1.1: 1986 Appropriation Request




Since, at the time of our review, the law provided that VA may furnish veterans medical care within the limits of VA facilities, the budgetary challenge for VA was to identify the resources (facilities, equipment, and staff) that would provide quality, cost-effective medical care to the greatest number of eligible veterans requesting care. However, Title XIX of the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272), enacted in April 1986, requires VA to provide hospital care for some veterans, and authorizes hospital care for other veterans to the extent resources and facilities are available. The act also makes other changes that will alter the cost of VA care to many veterans. Together, these changes may affect future demand for care. Among other things, the act provides:

- in new 38 U.S.C. 610(a)(1), that VA shall furnish hospital care and may furnish nursing home care to certain categories of veterans, including those with service-connected disabilities and those unable to defray the

costs of their care (as defined in the new 38 U.S.C. 622(a)(1);[7] [emphasis added]

- in new 38 U.S.C. 610(a)(2), that VA may provide hospital care and nursing home care, to the extent resources and facilities are available, to veterans for a nonservice-connected disability if the veteran has the income level described in new 38 U.S.C. 622(a)(2);[8] [emphasis added]
- that other categories of eligible veterans may receive medical care on a space-available basis, if they agree to pay the applicable cost of their care determined by VA under the act; and
- for third-parties to reimburse VA for care provided to a veteran for a nonservice-connected disability if an insurance company, or other third party, would pay for the cost of the care if provided in a non-VA facility.

## The Challenge of the Aging Veteran Population

The full implications of these changes on veteran demand for care will not be clear for several years. However, because the veteran population is aging, it is likely that, even with these changes, future demand for care will come primarily from older veterans. In its 1984 study, Caring for the Older Veteran, VA estimates that the total veteran population will decline by about 4.3 million between the years 1980 and 2000. But, as figure 1.2 shows, VA expects major changes in the age mix of that population. During this period, the number of veterans 65 and older is expected to triple, to almost 9 million, and the number of veterans 75 and older is expected to increase almost 500 percent to 3.97 million. (See figure 1.3.)[9] Persons over 75 generally require a higher degree of medical and nursing home care, so the growth in this portion of the veteran population has particularly significant implications for VA medical care. By the year 2000, VA estimates that almost two of every three men in the United States 65 and older will be veterans.

[7]New 38 U.S.C. 622(a)(1) states that a "veteran shall be considered to be unable to defray the expenses of necessary care if" the veteran (1) is eligible for Medicaid; (2) is receiving a section 521 VA pension, or (3) has "attributable income" for calendar year 1986 of not greater than: $15,000 for a veteran with no dependents, or $18,000 for a veteran with one dependent, plus $1,000 for each additional dependent.

[8]The income level described in new 38 U.S.C. 622(a)(2) is that which for calendar year 1986 does not exceed: $20,000 for veterans with no dependents, or $25,000 for a veteran with one dependent, plus $1,000 for each additional dependent.

[9]According to VA's 1984 Annual Report, as of September 30, 1984, there were about 4.6 million veterans 65 and older, comprising about 16 percent of all veterans. This is an increase of approximately 1.6 million since 1980. There were some 1 million veterans 75 and older, or about 140,000 more than in 1980.

## Demand for Care Could Grow Significantly by Year 2000

Based on these estimates, the VA study projected a dramatic increase in the demand for health care from older veterans, even if the percentage of such veterans requesting care remained constant. To meet demand, VA estimated that it would need an annual medical care operating budget (all figures in constant 1985 dollars) of between $13.6 and $19.6 billion in 1990, rising to between $15.4 and $24.3 billion in the year 2000. The amount varies depending on the assumptions made regarding the percentage of eligible veterans who will request VA medical care. In addition, VA estimated it would need from $7 to $25 billion for new construction and facility expansion, plus about $1 billion annually for upkeep, modernization, and replacement to maintain program levels previously established. (These estimates were made in 1984, when the law provided that all veterans 65 and older were eligible for VA medical care on a space-available basis at no cost. The changes in eligibility made by the Consolidated Omnibus Budget Reconciliation Act of 1985 alter the assumptions upon which these estimates were made.)

While elderly veterans' overall demand for medical care may rise significantly by the year 2000, growth in demand is unlikely to be uniform nationwide. Sunbelt states favored by retirees, such as Florida, Texas, and Arizona, are likely to experience greater growth in demand than northern states. Furthermore, the types of care required by elderly veterans, especially those over 75, may be considerably different than those provided to service-connected veterans, or medically indigent veterans (those unable to defray the costs of their medical care). The greater use of nursing home care by veterans over 75 is the most obvious distinction.

**Figure 1.2: Age Mix of Veteran Population**

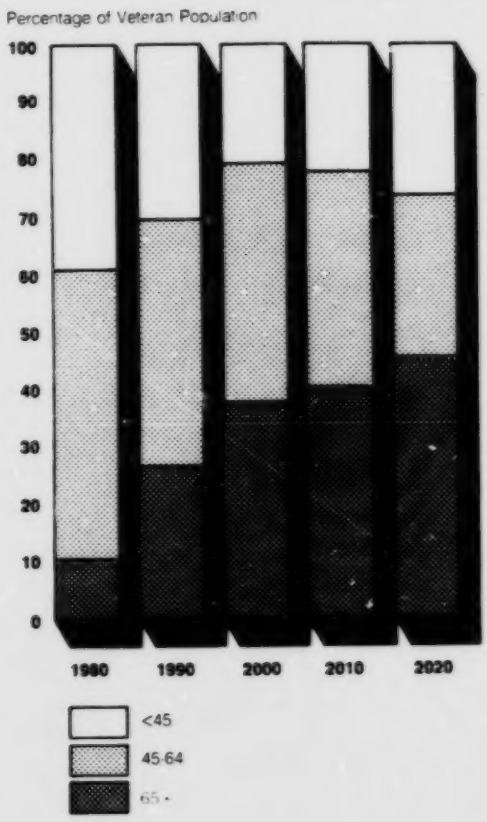
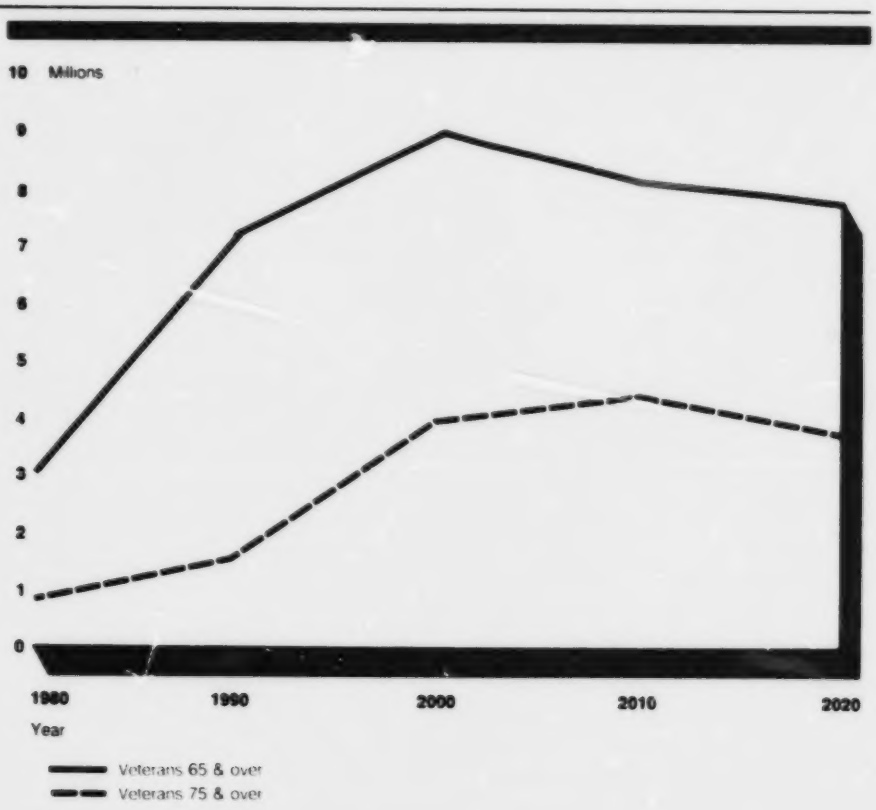


Figure 1.3: Projected Numbers of Veterans Ages 65 and Over and 75 and Over




## Planning for Demand Requires Reliable Information

Thus, as VA recognizes, the "graying" of the veteran population poses a major challenge for VA medical care and major construction planning and management. To meet this challenge, VA managers and health care planners need processes and information that can help them to identify the types, quantity, and costs of health care services currently provided veterans 65 and older and to evaluate means of minimizing those costs without reducing the quality of care. They also need information that will help them to identify the types and locations of construction projects needed to meet the expected demand, while minimizing both their number and their design and construction costs.

To adequately estimate the types and quantity of health care services needed, their costs, and their construction implications, VA needs integrated clinical and cost data that capture both workload and costs on a per patient and per procedure basis. The reason for this is simple: the

treatment that a patient receives, and therefore its cost, depends upon the illness for which he/she seeks medical care. VA estimates, for example, that the average cost of treating a bone marrow transplant patient is about $78,000, while that for cardiac (heart) surgery is about $5,000. Thus, each additional bone marrow transplant patient has as great a budgetary impact on a VA hospital as about 15 cardiac surgery patients.

## Reliable Per Patient Clinical and Cost Data Are the Most Useful

Financial management information systems that provide reliable data on the type, quantity, and costs of the clinical resources used to treat any specific patient or illness can be used to address a variety of health care delivery and cost questions in VA.

- What clinical resources (for example, x-rays, surgical procedures, or drugs) are used to treat specific illnesses or groups of veterans, and at what cost? How do both treatment patterns and costs vary among VA hospitals? Is it possible to provide quality care at less cost, particularly at those hospitals currently with the highest costs?
- What is VA's current capacity—facilities, equipment, and staff—to treat the mix of illnesses or "casemix" for which VA expects veterans to request care in the future? What types of staff, equipment, and facility changes will VA need to make in current medical facilities to meet the projected needs of elderly veterans (those 65 and over)?
- By substituting ambulatory (outpatient) for inpatient care where possible and appropriate, can VA (1) reduce current and projected health care costs, (2) reduce the current and/or future need for hospital beds and, thus, new construction, and/or (3) increase the number of veterans treated within a given budgetary ceiling?

Most of the information necessary to answer these questions should be available from VA's financial management reporting systems—information such as current caseload, overall casemix, casemix by major eligibility category, the clinical resources used to treat any particular illness or group of illnesses, and the cost of that treatment. All this information is needed to manage VA's medical care program efficiently and is useful to planners and budget analysts as well. With such information, VA can identify the array of additional resources it will need to meet future projected demand by comparing current caseload, casemix, and the clinical resources used to treat that casemix with the clinical resources estimated to be needed to meet projected future caseload and casemix.

Additional workload that cannot be met through improved efficiency of operations may be met through a combination of

- additional staff and/or a different combination of staff skills in VA medical facilities;
- the increased use of Department of Defense and/or private sector resources (for example, greater use of sharing arrangements);
- modification and/or expansion of existing equipment and facilities; and
- the construction of new facilities.

For construction planning, the geographic distribution of the expected caseload and casemix is particularly important, since any construction project would, of course, be built to meet the expected caseload in a specific geographic area.

## VA Financial Management: Current Improvement Efforts

We recently issued a report, Veterans Administration Financial Management Profile (GAO/AFMD-85-34, September 20, 1985), that describes a number of weaknesses in VA's current financial management and accounting systems. We reported that many of VA's current financial management systems did not produce accurate and reliable information. A major cause was the lack of internal controls made possible by state-of-the-art automated data processing (ADP) technology for data entry, telecommunications, and data base management. For example, VA's primary payroll, administrative expense, and workload reporting systems (Personnel Accounting and Integrated Data, or PAID; Centralized Accounting for Local Management, or CALM; and Automated Management Information System, or AMIS, respectively) all still use outdated keypunch equipment and sequential processing techniques that reduce the timeliness and, therefore, frequently the usefulness of the information the systems produce. VA's six main management information systems are briefly described in table 1.1; their use in financial management is delineated in table 1.2. They are discussed at length throughout this report.

**Table 1.1: VA's Primary Financial Management Information Systems**

| System | Purpose |
|---|---|
| Centralized Accounting for Local Management (CALM) | VA's main accounting system for non-personnel expenses (such as supplies, travel, equipment). Supports all activities. |
| Personnel Accounting and Integrated Data (PAID) | VA's primary payroll system. Supports all VA activities. |
| Automated Management Information System (AMIS) | VA's primary workload reporting system, tracking number of patient visits, benefit checks, and burials. Supports all VA activities. |
| Patient Treatment File (PTF) | Basic inpatient demographic and clinical data file used for medical care planning and budgeting. Can be used for assessing hospital lengths of stay. |
| RCS 10-141 (Formerly RCS 14-4) Report of Medical Care Distribution Accounts | Basic medical care cost allocation system, used to allocate program costs within VA hospitals.[a] |
| Beneficiary Identification Records Locator System (BIRLS) | Basic demographic and eligibility data base for veterans who are receiving or have applied for VA benefits of any type. Includes military discharge and disability status, age, and home zip code. |

[a]Reports are derived from workload data in AMIS and accounting data from CALM and PAID.

**Table 1.2: Major VA Financial Management Systems and the Processes They Support**

| | | | Department of Medicine & Surgery | | | Major Construction | | |
|---|---|---|---|---|---|---|---|---|
| System | Memorial affairs overall | Veterans benefits overall | MEDIPP[a] | Budget | Budget execution | Planning/ programming | Budget | Budget execution |
| BIRLS | X | X | X | X | X | X | | |
| PTF | | | X | X | X | X | | |
| AMIS | X | X | X | X | X | X | X | X |
| PAID | X | X | X | X | X | X | X | X |
| CALM | X | X | X | X | X | | X | X |
| RCS 10-141 | | | X | X | X | | | |

[a]Medical District Initiated Program Planning, VA's medical care planning process.

## VA Has Identified Important Financial Management Weaknesses

VA's Department of Medicine and Surgery's (DM&S) ADP Plan for Fiscal Years 1984-1989 highlights some important weaknesses in current financial management systems. It notes that none of the systems used for decisionmaking and reporting provide timely data and that the accuracy of the data is questionable. Specifically, the report states the following:

"Attempts to get better management information by linking the Patient Treatment Files (PTF) [containing clinical and demographic data for inpatients], the payroll and personnel system (PAID), and the VA's primary expense accounting system (CALM)

have resulted in data of questionable reliability because data elements vary in each system and reporting cycles are different."

"Current reports rarely provide measures or indices to support modern hospital management or strategic planning. The PAID system, for example, allows a person to be assigned to only one cost center in a hospital, although it is not uncommon for staff to be assigned to two, three, or more cost centers during one reporting period. Thus, when payroll data are handed off to AMIS to provide productivity indices, they frequently give an erroneous picture."

"Instructions for assignment of staff to multiple cost centers in a hospital are not clear, so various methods are used, making comparisons among hospitals impossible. The lack of refinement in the assignment of costs creates problems in implementing a new DM&S system of allocating resources to medical centers which relies on collecting information by patient categories, not bed sections."

The report further notes that because DM&S Central Office managers find it burdensome to make changes to these automated systems in order to get timely data in a desired format, individual systems and manual reports have proliferated.

VA identified additional weaknesses in its systems in its December 31, 1985, report produced in compliance with the Financial Integrity Act. This law requires agencies to review their systems of accounting and administrative internal controls and report annually to the President and the Congress on the adequacy of these controls and on corrective actions being taken to remedy any identified weaknesses. VA identified weaknesses in, among others:

- the procedures for constructing health care facilities, including project design and construction (both discussed in chapter 5 of this report),
- the Inpatient Drug Distribution System which has made pharmaceuticals susceptible to unauthorized use and loss,
- vendor payment procedures leading to many payments in violation of the Prompt Payment Act, and
- compensation and pension processing and procedures.

VA's problems are not unique among federal agencies. The dilemma for decisionmakers today, at all levels of the federal government, in virtually all agencies, is that too often information is not available when needed for decisionmaking or program management, including cost control. Frequently, therefore, agency officials and members of the Congress must either "make do" with the information available or spend a great deal of time and effort trying to assemble the data necessary to make a decision or determining the validity of the information at hand.

## VA Efforts To Improve Information Systems

VA's efforts to improve its financial management systems are described in detail in both our Financial Management Profile and VA's ADP and telecommunications plans. Two efforts of particular relevance to VA health care include the Decentralized Hospital Computer Program (DHCP) and three pilot projects to develop per patient clinical and cost information systems for VA.

The Department of Medicine and Surgery is currently implementing the DHCP in VA hospitals and medical centers. It is intended to provide data processing support for key operational functions in VA hospitals, with a single VA patient data base which can be accessed by all VA hospital system users. DHCP is being implemented in three phases: CORE, Enhanced DHCP, and Comprehensive DHCP.[10] The use of the Enhanced and Comprehensive DHCP packages at each hospital is optional.

DM&S also has underway three projects (described in appendix IV) funded in large part by the participating hospitals, to use the DHCP patient data base as the basis for developing systems that provide per patient cost and clinical information. Two of these systems—at Long Beach, California, and Hines, Illinois—are being developed by VA. The third, at Brockton/West Roxbury, Massachusetts, is testing the applicability within VA of a standard medical product costing system such as the one pioneered by the New England Medical Center. The plan is to operate this system using the DHCP feeder systems.

## Casemix-Based Resource Allocation Methodology Encourages Hospital Efficiency

To encourage and reward hospital efficiency in the delivery of medical care, beginning with fiscal year 1985, VA has begun basing a growing portion of each hospital's operating budget on its workload and costs as measured by Diagnosis Related Groups (DRGs), through a system known as the Casemix-based Resource Allocation Methodology.[11] DRGs are a means of classifying hospitalized patients according to the primary diagnosis responsible for the major portion of the patient's hospital stay. VA reimburses its hospitals at a set rate per DRG, just as Medicare reimburses private hospitals at a set rate per DRG (though neither the rates nor the systems used are the same). Thus, VA designed the system to

[10]CORE includes Initial CORE (patient registration, admission/discharge/transfer, patient tracking, clinic scheduling, and outpatient pharmacy) and Full CORE (inpatient pharmacy and clinical laboratory). The second phase, Enhanced DHCP, is a set of 20 applications that includes radiology, dietetics, medical records tracking, fiscal and surgery. Comprehensive DHCP is the final phase, and includes among its 14 applications prosthetics, optometry, podiatry, and neurology.

[11]This system and its implications for VA health care financial management are discussed in chapter 2 of this report.

encourage VA hospitals to be more efficient and cost conscious in their delivery of health care. In fiscal year 1986, VA added casemix methodologies for (1) ambulatory and (2) intermediate and long-term care.

## Prior Studies of VA's Construction Process Have Led to Improvement Efforts

Appendix VI contains a description of the major studies of VA's construction process in the last decade. Basically, problems identified have revolved around three issues:

- the "proper" division of responsibilities between DM&S and the Office of Construction;
- the lack of consistent criteria for selecting and ranking major construction projects; and
- the need to improve the data used both to assess major construction projects and determine their scope and design.

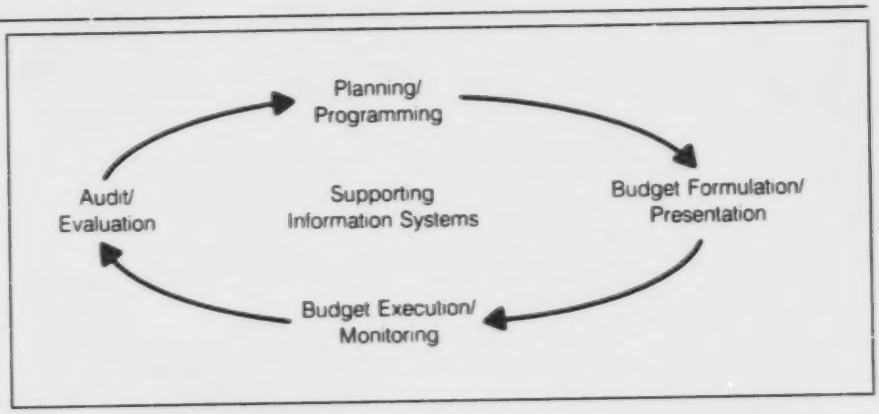
In 1984, the House and Senate Committees on Appropriations directed VA to develop a method for objectively prioritizing construction projects. That methodology was completed in May 1985. VA has also developed a prototype design for VA nursing homes, with the goal of reducing both the time and costs of building them. In February 1984, VA awarded a contract to Booz, Allen & Hamilton to conduct a study of VA's construction process. That report, whose final recommendations were delivered in April 1985, formed the basis for the former VA Administrator's recent proposal to merge DM&S and the Office of Construction, making VA's Chief Medical Director responsible and accountable for VA's construction process. The new Administrator has altered that proposal, and proposes creating a new, independent Office of Facilities under the Associate Deputy Administrator for Logistics that would be responsible for all construction activities in VA, not just DM&S medical facilities.

## Objectives, Scope, and Methodology

To evaluate VA's financial management processes, we used the concept of financial management outlined in our two-volume report, Managing the Cost of Government (GAO/AFMD-85-35 and 35A, February 1985). That report views financial management as a four-phased cycle, with each phase connected to the one preceding and following it. The source of linkage between the phases, and the foundation on which they rest, is sound financial and program information—information that is accurate, reliable, consistent over time, and comparable among organizations and programs performing similar functions. This concept is depicted in

figure 1.4. The criteria used for evaluating each phase of the process can be found in appendix I.

**Figure 1.4: Financial Management Cycle**




VA's 1985-89 ADP and telecommunications plans call for spending $244 million over those years for developing 52 major automated system projects and 5 major procurements of computer and other ADP equipment. We did not evaluate the effectiveness of the proposed changes or the potential additional costs, if any, of implementing the recommendations in this report. Our recommendations were developed using the criteria set out in the two-volume report and should improve the effectiveness of VA's planned financial management system improvements.

We were completing this review as the Balanced Budget and Emergency Deficit Control Act of 1985 (Public Law 99-177), commonly referred to as Gramm-Rudman-Hollings, was being enacted. The act established automatic procedures for reducing the funding levels for fiscal years 1986 through 1991, if specified deficit levels are not achieved through the regular budget process. We recognize that actions taken in response to passage of the act may limit VA's ability in the immediate future to fully implement both its planned system improvements and the recommendations in this report.

In April 1986, when this report was largely complete, the Congress passed the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272). As discussed earlier in this chapter, Title XIX of that law made several changes in veteran eligibility for VA health care

and increased the cost of that care for certain categories of eligible veterans. These changes are likely to affect both the number and mix of eligible veterans requesting VA health care. However, the effect of these changes will not be clear for at least a year, and we did not assess their potential effects on future demand for care.

In conducting our review, we interviewed VA officials, both in headquarters and in the field, and reviewed financial management guidance, documents, and reports from all four phases of the financial management cycle. Though our emphasis, as requested, was on VA's Central Office processes, understanding VA medical care financial management—especially planning and budget execution—required some familiarity with field operations. After discussing the characteristics of different districts with VA officials, we tried to choose districts to visit that, in total, contained medical care facilities fairly indicative of all VA facilities. We visited four medical districts of varying characteristics (see section on districts visited), nine hospitals (eight of which were in the four medical districts visited), and three of VA's seven medical care regional offices. The ninth hospital was chosen because it had a unique system for accumulating bone marrow transplant costs that highlighted deficiencies in VA's current medical care accounting systems.

Though the districts and hospitals visited are not statistically representative of all VA's medical districts and hospitals, they did provide a number of examples of how weaknesses in VA's current financial management systems and reports affect planning and management in VA's medical care program. Furthermore, these examples were mutually reinforcing. That is, the same basic problems appeared in every hospital visited.

## Districts Visited in Evaluation Process

### District 6

Headquartered in the Washington, D.C., VA hospital, this district is closest to VA headquarters; it has a major replacement hospital (Baltimore) whose size, bed mix, and siting have been the object of much discussion and debate both inside and outside VA; and it is located in a metropolitan area with several private teaching hospitals and two major Department of Defense hospitals. We visited only the Washington hospital.

District 12

Headquartered in Gainesville, Florida, and encompassing all of Florida (except the Panhandle) and 12 counties in southeastern Georgia, this district has experienced rapid growth in veteran population due to the migration of retirees to Florida; it serves among the highest percentage of service-connected veterans in the VA system; it has 5 hospitals, 4 of them major teaching and research centers; and it has several major construction initiatives underway to meet the demand for medical care, including a proposed hospital in eastern Florida where no VA facilities have previously been located. We visited hospitals in Miami, Tampa, Bay Pines, and Gainesville, as well as the regional office also located in Gainesville.

District 18

Headquartered in Minneapolis, Minnesota, this district has a slightly declining overall veteran population, but an aging one; it has a single, major medical center (Minneapolis) where a replacement hospital is being built and which serves as a referral center for all other VA facilities in the district. We visited the Minneapolis hospital and district headquarters, as well as the regional office in Omaha, Nebraska.

District 26

Headquartered in the West Los Angeles, California, VA medical center, this district has a declining veteran population, but an aging one; it has three of VA's leading medical centers, its only hospice, and its only center for Legionnaire's disease; it has 6 major teaching hospitals, several major construction projects underway, a pilot project for developing per patient costs at the Long Beach hospital, and many other private and Department of Defense facilities with which it can share facilities for care. We visited the West Los Angeles and Long Beach hospitals and the regional office in San Francisco.

The organization of our report reflects our financial management model. Chapters 2, 3, and 4 deal with VA's medical care programs—under the Department of Medicine and Surgery—and examine budget execution, formulation, and planning, respectively. Chapter 5 compares VA's major construction process to our model. Chapter 6 is a brief overview of financial management within VA's two other operational departments—Veterans Benefits and Memorial Affairs. Conclusions and recommendations are presented at the end of each chapter.

## Results of Construction Study Complement Our Results

Assessing VA's major construction process offered a significant challenge because that process not only encompasses all four phases of the financial management cycle, but every organizational level within the Department of Medicine and Surgery and the Office of Construction. About 8 months before we began our work, at VA's request, the consulting firm of Booz, Allen & Hamilton initiated a 1-year study of VA's construction process. The firm's study was divided into three phases with a report issued at the end of each phase: description of processes (September 1984), assessment (December 1984), and recommendations (April 1985).

Booz, Allen & Hamilton issued its description of the process in September 1984, just as the scoping and planning phase of our review was ending. That report indicated that there was a clear lack of integration between medical care planning and construction planning. Since VA's medical care planning process—Medical District Initiated Program Planning (MEDIPP)—was beyond the scope of the firm's study, we decided to concentrate our efforts there. This was especially appropriate, since VA's own descriptions of MEDIPP state that one of the principal purposes of MEDIPP is to improve the linkage between medical care needs and construction planning. We also recognized that the total scope of our job precluded the type of detailed study of VA's construction process that Booz, Allen & Hamilton was undertaking. Therefore, we decided to complement its work where possible and follow the progress of its study by maintaining contact with both the Booz, Allen analysts and the VA personnel overseeing the study.

At VA's request, Booz, Allen & Hamilton made its workpapers available to us, and we reviewed both the methodology and workpapers. The purpose of this was twofold: (1) to ensure that Booz, Allen's work met generally accepted government auditing standards, so that (2) we could confidently cite the results of its work as necessary to supplement our own analysis.

We also interviewed many of the same VA officials involved in construction who were visited by Booz, Allen & Hamilton, and we visited some of the same hospitals. We included construction issues in our interviews with MEDIPP planners and hospital officials and compared our interview results with those of Booz, Allen when we reviewed its workpapers. We found that the two sets of interviews were mutually reinforcing with regard to the major problems in VA's construction process.

In chapter 5, we have tried to highlight how our work fits with the Booz, Allen study and to differentiate its findings from our own. In general,

our work focused on MEDIPP, on VA's new prioritization methodology, completed after Booz, Allen had issued its final report in April 1985, and on the effects of financial management data weaknesses on construction planning, prioritization, and design. We supplemented that with our own analysis of Booz, Allen's study. Booz, Allen did not examine the system weaknesses that led to problems in designing VA hospitals, but only documented their effects. We assessed whether those effects could be remedied without addressing some of the underlying weaknesses in the VA financial management systems on which the construction process relies.

VA was asked, but did not provide, formal comments on this report. However, VA officials did provide clarity points which have been incorporated where appropriate.

With the exceptions noted above, our review was conducted in accordance with generally accepted government auditing standards.

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# Department of Medicine and Surgery Budget Execution

VA uses budget execution reports primarily to avoid Antideficiency Act violations by tracking and monitoring obligations. An example of how well VA tracks obligations is the fact that the Long Beach hospital obligated all but $100 of its $132 million fiscal year 1984 medical care appropriation. VA's current financial management reports provide information useful for controlling obligations and remaining within budget ceilings, and its budget execution processes are basically sound. They do not, however, provide such managerially useful information as the types of illnesses for which veterans are treated, the costs of that treatment, or the composition of those costs.

This chapter begins with an explanation of budget execution and the criteria we applied to determine the adequacy of VA's budget execution process. Because understanding budget allocation is necessary to understanding the budget execution process, we provide information in this chapter on how VA develops its hospital operating budgets. The problems in the current clinical and financial data, identified by us and VA, are reviewed next. In addition, we note two shortcomings in VA's financial data systems—two functions the systems do not have. Because VA has already recognized many of these problems in its data systems, it has developed several programs and projects that are collecting clinical and financial data in new ways. We describe and evaluate these efforts, then summarize our conclusions and make recommendations for improvements in the budget execution process.

## Purpose of Budget Execution

Budget execution measures both program and financial performance which includes measuring the cost—dollars, staff, equipment, supplies, and facilities—of VA's medical care programs. The information developed in this phase of the financial management process is perhaps the most crucial, because it becomes the basis, at least in part, for decisions made in the other three phases—planning/programming, budgeting, and audit/evaluation. To manage their budgets, VA hospital directors and service chiefs (for example, the heads of laboratory, pharmacy, radiology, etc.) need information on the types of laboratory tests, drugs, and radiology treatments they are providing and at what cost. Planners need information on the types of illnesses for which veterans are being treated and the clinical resources used to treat them in order to plan for their future medical care needs. To develop future budgets, budget analysts need information on prior year costs and the reasons for variances from past fiscal and program plans. All this information should be available from budget execution reports.

## Criteria for Budget Execution

To provide information useful for management, a budget execution process should have these five characteristics:

(1) Budgeting and accounting should be on the same basis so that actual results can be measured against plans. By using the same principles for both budgeting and accounting, budget estimates can be based on an analysis of variance from program and budget plans. This is difficult when budgeting and accounting use different principles and/or categories. If VA, for example, allocates hospital budgets on the basis of workload and costs as measured by DRGs, its accounting systems should be able to capture workload and cost by DRG. This also improves budget execution by allowing a hospital to identify the cost of each DRG and take appropriate action to lower excessive costs.

(2) The cost of services should be matched with the delivery of services. The cost of resources used should be matched with the services that an agency is delivering, and the cost of the material or service should be recorded in the same financial period in which the material is used or service provided. This permits comparison of the cost of the same service over time, of similar services within an organization (for example, open-heart surgery in VA hospitals), and of similar services or operations between organizations (for example, acute care hospital costs in VA and in the Department of Defense). It also allows managers and policymakers to make better informed cost-benefit evaluations.

(3) There should be a system of reporting that compares costs and accomplishments to the expectations set for the managers and organizations responsible for them. Performance measures should establish the environment for a management system that encourages financial accountability. Financial plans should be developed at the organizational level to which spending authority has been delegated. Reports of actual versus planned costs should be regularly provided to the individuals having authority for spending decisions. By analyzing the variances from planned costs, managers can identify major areas of savings and increases and take appropriate action.

(4) Information should be available for analysis of alternative courses of action. Managers should have information that permits them to analyze the probable consequences of alternative courses of action. A "modeling" function within an integrated, automated budgeting and accounting system permits managers to run "what if?" analyses using projections of the probable consequences of alternative changes in budgets, workload, and costs.

(5) Timely cost and routine performance information should be provided. Managers should have timely cost and workload (routine performance) information so that decisions can be made and action taken when they can be most effective.

Specifically in regard to VA, we applied the criteria to determine if the following questions are answered within the budget execution process:

- What types of clinical services is VA providing patients and at what costs?
- What are the variances between the planned, or budgeted, costs of the services and their actual cost to date? What are the causes of the variances reported?
- For causes within managerial control, what are alternative ways of reducing costs? What are the probable consequences of each method in terms of costs and care?

In order to answer those questions, we believe the following data are needed:

- workload measures of the types and quantity of each type of care provided (for example, outpatient visits by clinic and number and type of illnesses for which patients are hospitalized);
- the costs of providing each type of service; and
- data which integrate workload and cost data in a managerially useful way (for example, by diagnosis, clinical subspecialty, clinical service, major bed section, etc.).

The data needed to answer these questions have become even more crucial with the advent of VA's new methodology for allocating a growing portion of its budget. VA, in fiscal year 1985, began using this new allocation methodology based on Diagnostic Related Groups (DRGs). This methodology emphasizes the importance of accurate clinical and financial data.

## How VA's Medical Care Budget Is Allocated

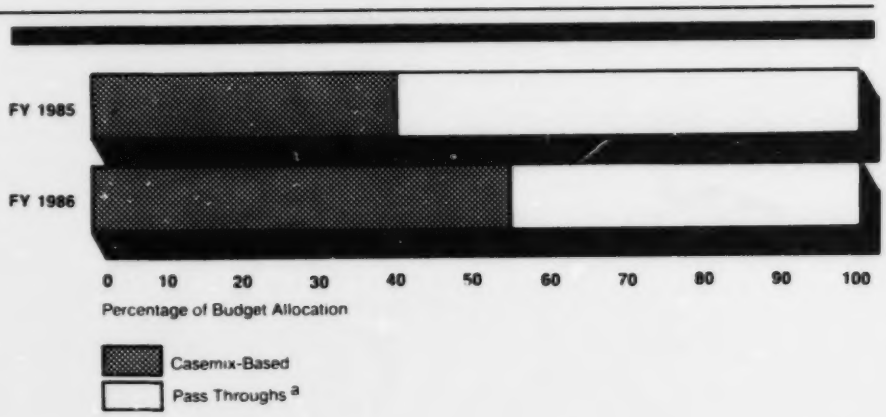
Prior to fiscal year 1985, VA developed hospital budgets by incrementally adjusting current budgets using aggregate workload, inflation, and other expected cost increases. Since individual hospital cost efficiency was not a major factor in allocating hospital budgets, this system provided little incentive for hospitals to reduce costs. In fiscal year 1985, VA began phasing in a new method of allocating operating budgets to VA hospitals—the Casemix-based Resource Allocation Methodology.

Its purposes are to link hospital budgets more closely to their actual medical care workloads and to provide an incentive for hospitals to make their direct medical care operations more efficient.

Under the new system, approximately 40 percent of each hospital's budget for fiscal year 1985 was based on its acute care workload as measured by DRGs. (Fiscal year 1985 budgets were based on fiscal year 1983 workload, the latest data available at the time fiscal year 1985 budget planning began.) The percentage will increase in fiscal year 1986 to approximately 55 percent, largely due to the addition of components for long-term care and outpatient care. The portion of the budget that is casemix-based is referred to as CMDE dollars (Casemix Direct and Education dollars). To help hospitals adjust to the new budget allocation system, actual adjustments to each hospital's operating budget—using the new system—were limited to plus or minus 1 percent in fiscal year 1985 and 3 percent in fiscal year 1986. (See figure 2.1 for a graphic representation of the proportion of VA's budget that is casemix based.)

DRGs are a set of 470 diagnostic classifications for inpatients, reflecting a fundamental assumption about the relationship between a patient's diagnosis and the costs of treating that patient. The assumption is that the costs of treating a patient are directly related to the diagnosis for which the patient is hospitalized. It is further assumed that patients with similar clinical characteristics will use similar resources in the course of their hospital stays and thus will have similar costs for treatment. Thus, by comparing the resource usage and treatment patterns of patients with the same DRG, DRGs can be—and are, under Medicare—used as the basis for cost containment efforts and utilization and quality assurance reviews.

**Figure 2.1: Basis of VA Budget Allocation for FY 1985 and FY 1986**




[a] Pass through costs represent the portion of the budget that is developed by making incremental adjustments to current budgets based on aggregate workload, inflation, and other expected increases in cost.

In VA, each DRG carries a specific number of weighted work units.[1] This unit is a relative measure of the resources spent on a particular DRG. A DRG which requires more resources than another DRG would have a correspondingly higher unit value. These unit values were originally based on a 1982 New Jersey statewide DRG reimbursement schedule. VA took the reimbursement schedule, set the most expensive DRG at 1,000 work units, and then assigned each DRG of lesser value below this a proportionally lower unit value. VA officials determined that VA hospitals would be reimbursed at the rate of the national average cost per work unit ($29.91 for fiscal year 1985). Thus, if a DRG had a unit value of 100, the dollar value of that DRG to a VA hospital would be $2,991 (100 x the national average cost per work unit of $29.91). If a hospital's cost per work unit is greater than the national average, it would get a lower operating budget and, therefore, it would be able to treat fewer patients. If its costs are less, it will make a "profit" and be able to expand its programs. The incentive for each hospital, therefore, is to ensure that its average costs per work unit do not exceed the national average. This national average is calculated using the formula shown below.

[1] VA teaching hospitals affiliated with a medical school earn more work units per DRG than nonaffiliated VA hospitals. This is based on the widely accepted principle that teaching hospitals, because of their role in training new physicians, have higher direct medical care costs than do nonteaching hospitals.

| | | |
|---|---|---|
| | Total direct medical care costs of all VA hospitals (based on the RCS 10-141 reports for all hospitals) / Weighted work units for all hospitals (based on Patient Treatment File data) | = National average cost per weighted work unit |

## Importance of Accurate Clinical and Financial Data

To control costs and ensure that each hospital's average cost per work unit is no more than the national average, a VA hospital director must have the means of ensuring that the hospital's reported costs and DRGs are accurate. The new system provides an incentive for a hospital to maximize the work units earned while minimizing the costs incurred to earn them.

### Effect of DRG Errors

A 1984 study by a major VA teaching hospital illustrates the importance of accurate DRG classifications. As table 2.1 shows, incorrect DRG assignments can significantly affect a hospital's budget.[2] The study, from which these examples were taken, found incorrectly assigned DRGs in 17 of 57, or 30 percent, of the cases reviewed. The net effect was a $28,608 loss to the hospital. Using VA's Casemix-based Resource Allocation Methodology, table 2 2 illustrates the total budgetary impact on the hospital if the error rate found in the study were true for all 15,489 patients discharged in fiscal year 1983. The hospital's total budgetary loss would be more than $211,000. If VA had not limited casemix adjustment to the lower of 1 percent of CMDE dollars, or 20 percent of the difference between actual CMDE dollars and expected CMDE dollars, the loss would have been even greater. Were the hospital's acute care budget based solely on the unadjusted casemix allocation, the hospital's loss would have been about $21 million (line D of table 2.2).

[2]Accurate DRG classifications are important for other reasons as well. Primarily, their use in quality assurance reviews can ensure that proper medical treatment is provided for the patient. However, the effects of the DRG classifications not related to financial management were beyond the scope of our review.

**Table 2.1: Illustrations of the Budgetary Effect of Incorrect DRG Classifications for VA Inpatients**

| Actual DRG assigned | Dollar value | Correct DRG | Dollar value |
|---|---|---|---|
| DRG 426—Depressive neurosis. Patient hospitalized 60 days for depression; 30 days in alcohol treatment program. | $2,091 | DRG 436—Alcohol dependence. Patient should have been discharged and readmitted to the alcohol program. | $4,353 |
| DRG 122-Circulatory disorders with acute myocardial infarction without cardiovascular complications; discharged. | $5,636 | DRG 12— Degenerative nervous disease disorders. Spent majority of time in rehabilitation unit for Parkinson's Disease, which is not a circulatory disorder. | $2,445 |
| DRG 438—Alcohol and substance induced organic mental syndrome. Patient admitted to drug dependency treatment program. Had emergency surgery; developed acute renal failure. | $2,519 | DRG 123— Circulatory disorders with acute myocardial infarction; expired. | $6,626 |

**Table 2.2: Examples of Budgetary Effects of Incorrect DRGs**

| | VA medical center actual data | VA medical center corrected data assuming error rates are representative | Net difference |
|---|---|---|---|
| A.Dollars received for 17 incorrect DRGs | $50,184 | $78,792 | $28,608 |
| B.Weighted work units received for 17 incorrect DRGs | 1,570.1 | 2,508.3 | |
| C.Expected Casemix Direct and Education[a] | $44,810,474 | $70,352,444 | |
| D.Actual Casemix Direct and Education | $37,088,721 | $58,229,291 | $21,140,570 |
| E.Expected-actual | $7,721,753 | $12,123,153 | |
| F.20 percent of expected-actual | $1,544,351 | $2,424,631 | |
| G.1 percent of Casemix Direct and Education | $370,887 | $582,293 | |
| H.Casemix allocation lesser of F or G | $370,887 | $582,293 | $211,406 |

[a]"Casemix Direct and Education" refers to the portion of VA's budget which is subject to the Casemix-based Allocation Methodology previously described in this chapter.

## Identifying Direct Medical Care Costs

Under the Casemix-based Resource Allocation Methodology, the accurate recording and reporting of financial costs is equally important to a hospital. Only "direct medical care" costs, that is, the direct costs of providing patient care, are used in computing the cost per weighted work unit. Other costs, such as education and research, are considered "pass-through" costs. Budgets for pass-through costs are based on the prior

year's budget, plus incremental adjustments for inflation, salary increases, etc. Thus, it is financially advantageous to a hospital to maximize its pass-through costs. The salary of a physician, for example, must be properly divided between research (a pass-through cost), education (a pass-through cost), and direct medical care based on time actually spent in these activities. These costs are reported in the RCS 10-141 cost allocation report, prepared quarterly. In the past, the costs reported in the RCS 10-141 had little effect on a hospital's operating budget because, as previously stated, a hospital's budget was all pass-through costs. In addition, the allocation of resources among hospitals was not affected by the RCS 10-141. The new importance of the RCS 10-141 has focused increased managerial attention on the accuracy of the costs contained in these reports.

## Overall Impact of the New Resource Allocation Methodology

By attempting to tie a hospital's budget both to the type of medical care it provides (its DRG workload) and its efficiency, the VA's Casemix-based Resource Allocation Methodology has had one key benefit—increased managerial attention to VA's clinical and financial reporting systems. The new methodology places a premium on the accuracy of the clinical data contained in the Patient Treatment File (PTF), since the information there is the basis for DRG assignments. Prior to the new methodology's introduction, clinical inaccuracies in the PTF had no budgetary effect on a hospital. Once the new methodology is fully implemented, these inaccuracies can cost a hospital hundreds of thousands, even millions, of dollars.

Similarly, the new budgetary importance of the RCS 10-141 report has made the accuracy of those reports critical. However, hospital directors are finding that simply assuring the accuracy of the RCS 10-141 report is insufficient. An RCS 10-141 report shows aggregate costs by program area—for example, surgery, neurology, radiology—not by individual patient or diagnosis. While knowing program area costs is important in controlling a hospital's direct medical care costs, equally, if not more important, is knowing the cost per DRG. A hospital is reimbursed by DRG, not program area. But knowing the cost per DRG requires the type of per patient clinical and cost information that VA does not currently have. Thus, the new methodology financially penalizes inefficient hospitals, but current financial management reports do not provide hospital managers the information they need to identify sources of inefficiency and correct them. To remedy this problem, VA is conducting three pilot projects designed to develop the integrated per patient clinical and

financial data required to identify costs by DRG. (The projects are discussed later in this chapter and in appendix IV.) In addition to cost control, the DRG cost information would have other important uses, such as quality control and peer review.

## Problems in the Accuracy of Clinical Data

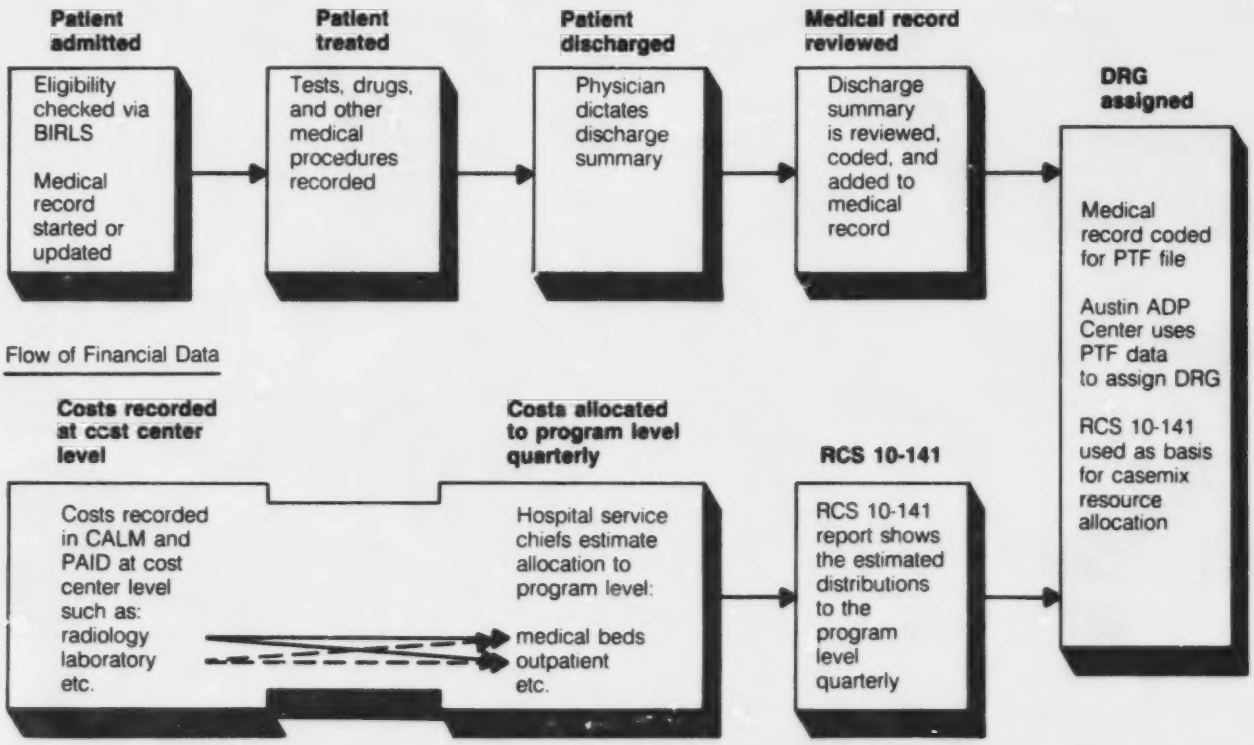
Clinical data and information on the patients treated are collected in two main systems—the PTF for inpatients and the Automated Management Information System (AMIS) for all other patients. The PTF's importance in VA's Casemix-based Resource Allocation Methodology has already been discussed. The PTF's other major use is in planning. The VA bedsizing model, used to determine the number and type of beds for new construction and modernization projects, relies primarily on data from the PTF, AMIS, and several other reports. AMIS is VA's primary workload reporting system, not only for much of the medical care system (including outpatient and nursing home care) but for other VA activities as well, such as burials, loan processing, and benefit applications review. More importantly, AMIS is the only VA management system that interfaces with other key financial management systems, such as PAID, CALM, and the PTF. All these systems feed data to AMIS. AMIS can either use the data independently or combine data from a variety of different sources to produce reports that combine workload and financial data.

Figure 2.2 illustrates the general flow of clinical and cost data at VA. This figure shows that both the clinical DRG data from the PTF and the financial or cost data from the RCS 10-141 are used as the basis for casemix-based resource allocation. The DRG data from the PTF determine the weighted work units for each VA hospital (as previously described) and the RCS 10-141 establishes the program costs to be used in computing each hospital's average weighted work unit cost.

### Patient Treatment File Problems

DRGs are assigned to individual patients in VA based on the information contained in the patient discharge summary, as coded and recorded in the PTF. The PTF is VA's primary demographic, clinical, and workload data base for inpatients. When a patient is discharged from either a

**Figure 2.2: Flow of Clinical and Financial Data for VA Acute Care Inpatients**


Flow of Clinical Data
Patient admitted
Eligibility checked via BIRLS
Medical record started or updated
Patient treated
Tests, drugs, and other medical procedures recorded
Patient discharged
Physician dictates discharge summary
Medical record reviewed
Discharge summary is reviewed, coded, and added to medical record
DRG assigned
Medical record coded for PTF file
Austin ADP Center uses PTF data to assign DRG
RCS 10-141 used as basis for casemix resource allocation
Flow of Financial Data
Costs recorded at cost center level
Costs recorded in CALM and PAID at cost center level such as:
radiology
laboratory
etc.
Costs allocated to program level quarterly
Hospital service chiefs estimate allocation to program level:
medical beds
outpatient
etc.
RCS 10-141
RCS 10-141 report shows the estimated distributions to the program level quarterly

private or a VA hospital, the discharging physician dictates a patient discharge summary identifying the primary discharge diagnosis, all treated secondary diagnoses, all major medical procedures performed (such as surgery), any comorbidities (conditions existing at the time of admission that may affect the treatment of the primary diagnosis or affect the length of hospitalization), and any complications that arose during the course of treatment.[3]

[3]Veterans treated in private hospitals at VA expense are not included in the casemix budget allocation process. They are funded as "pass-throughs." DM&S has proposed excluding such patients from the PTF because the cost of treating these patients is not included in the casemix portion of a hospital's budget.

The PTF contains "hard data" fields, such as date of birth, admission type, and place of disposition, and "soft data" fields that are generally subjective, such as the diagnostic fields. According to VA, determining and recording the diagnoses are what cause the data inaccuracies in the PTF.

The discharge summary, along with the patient's medical record, is sent to the hospital's medical records section. There it is transcribed, and both the summary and record are reviewed. If additional information or clarification is required, the physician is notified. Once the medical records section is satisfied, the information in the discharge summary is coded, keypunched, converted to magnetic tape, and sent to VA's Austin, Texas, Data Processing Center, where it is edited for obvious errors and processed into the PTF. A computer program then uses this data to assign the DRG for each patient.

It is important that physicians provide complete and accurate diagnostic and medical procedure information in the discharge summary because the ICD-9-CM[4] coding is based on it. The ICD-9-CM codes are the basis for DRG assignment and, thus, the weighted work units earned and the reimbursements the hospital receives from VA.

Two VA in-house studies of the PTF (Stranova, October 1982 and Lloyd, April 1984) have reported that the primary sources of errors were the information physicians dictate for the discharge summary and the coding of the information in that summary. Keypunch errors account for only about 1 percent of all errors found. VA's Resource Allocation Coordinator's Guide stresses the importance of the physician, as the following excerpt illustrates:

"Physician errors may occur as a result of failure to follow the VA definition of primary discharge diagnosis as that diagnosis responsible for the major portion of the patient's length of stay; failure to list appropriate, treated secondary diagnoses in order of descending clinical importance; failure to use complete, acceptable medical terminology; omission of diagnoses and procedures which are supported by the medical records; and by listing diagnoses and procedures which are not supported by the medical record.

"The primary discharge diagnosis and all treated secondary diagnoses must be identified at discharge in order to be used in DRG category assignment. Omitted or incomplete information may seriously jeopardize the validity of the DRG information used for case-mix calculations. While inadequate identifications of some of the treated secondary diagnoses may affect the hospital's case-mix more than others,

[4]International Classification of Diseases—9th revision (1979) clinical modification.

omitted diagnostic information is likely to have the most serious impact. Physicians must identity all treated diagnoses and avoid omissions entirely. It cannot be expected that medical records coding personnel or anyone else can generate the informacion that should have been provided by discharging physicians.

"Further, in addition to identifying all treated secondary diagnoses, each must be specified fully. Inadequate specification of relevant diagnoses will result in the assignment of a DRG code number that incorrectly represents the specific characteristics of the illness treated. Coding personnel are usually unable to determine which of several specific diagnostic codes should be used unless a physician provides the descriptive diagnostic information. Without correct and complete diagnostic information provided by a physician, it is impossible to determine the accuracy of the DRG assignment and the corresponding weighted work load units earned.

"This is also true of surgical procedures performed on a patient during the stay. If these procedures are not identified by the physician at the time of discharge, and included in the discharge summary, they will not be noted by coding personnel. It cannot be expected that medical records personnel or anyone else can generate the information that should have been provided by the discharging physician.

"It should also be noted that in affiliated hospitals, most of the discharge summaries are dictated by first year residents; the proper guidance is necessary. The new Casemix Resource Allocation System requires doctors to devote additional attention to administrative detail and clerical tasks, particularly with respect to the completion of patients' charts."

In regard to the second major source of errors, coding of the information in the physician's summary, the VA Guide notes:

"Coding errors may be caused by transposition of code numbers, failure to follow ICD-9-CM coding conventions, failure to adhere to VA coding guidelines, or misinterpretation of the diagnostic or procedural statements. Medical record personnel are responsible for qualitative/quantitative review of each medical record. Medical records with diagnoses or procedures apparently omitted from the discharge summary must be returned to the physician for verification before the diagnosis or procedure can be added to the summary or entered into the PTF. It is extremely risky to depend on a coding clerk to identify and specify procedures if a physician has failed to include this information."

Experience is very important in accurate coding because the coding clerk must interpret the information on the discharge summary to assign ICD-9-CM codes. This is no simple task. There are, for example, more than 2,600 ICD-9-CM codes just for comorbidities and complications. Our interviews revealed that problems in coding were most acute at those VA hospitals in urban areas with a high cost of living and where private hospitals paid considerably more than VA could for coding clerks.

At two hospitals we visited, approximately 50 percent of the medical records personnel left their jobs and had to be replaced in fiscal year 1984. The loss of experienced medical record coding clerks has a budgetary effect on hospitals. The coding clerks' ICD-9-CM coding of the discharge summary is the basis for DRG assignment and thus reimbursement for both VA and private hospitals under Medicare. Some private hospitals derive as much as half of their total revenues from Medicare patients. Skilled coding clerks can easily return several times their salaries to a private hospital through accurate ICD-9-CM coding. Several VA hospital officials stated that they find themselves in the position of being a training ground for coding clerks who can then move to private hospitals for substantial salary increases. (See results of SysteMetrics study on pages 47 to 49.)

VA's 1982 Stranova study reviewed a weighted sample of 2,400 medical records at eight medical centers with the objectives of identifying the source of any data discrepancies, determining whether there were differences in data quality among hospitals and clinical services, and examining the potential impact of PTF data quality on VA bed projection models. The report concluded that while problems in the quality of PTF data appeared to be minimal on a case-by-case basis, they were dramatic in the aggregate.

Of particular significance was the 31.9 percent of sample cases where a discrepancy was found in the primary diagnosis— the one used for DRG assignment and, therefore, a hospital's casemix allocation adjustment. Of this percentage, 25.1 percent were physician errors and 6.8 coder errors. Based on its weighted sample, the study estimated that 50.7 percent of all diagnoses in the PTF for the eight hospitals surveyed would require some modification when reviewed.

Similar problems were reported by the 1984 Lloyd study which reviewed 1,829 medical records at five hospitals in a single VA medical district. It reported that 82 percent of the medical records had at least one error. The reported causes of these errors were: physician error (51 percent), coding error (30 percent), and keypunch error (1 percent).

The study found that about 19 percent of DRG assignments in the medical district were in error. Most significantly, the study found that the effect of PTF errors on DRG assignments, and thus hospital budgets, was "dramatic and unpredictable." For the five hospitals in the study, correcting the PTF errors resulted in a change of from 8,000 to more than

30,000 additional weighted work units earned, or $239,000 to $897,000, based on the fiscal year 1985 value of $29.91 per weighted work unit.

In addition to these two in-house studies, VA commissioned a third, more comprehensive study of the PTF. Unlike the previous studies, this one, the SysteMetrics study, was designed so that the results could be projected on a national basis. The study was based on 1984 PTF data and was completed in late 1985.[5]

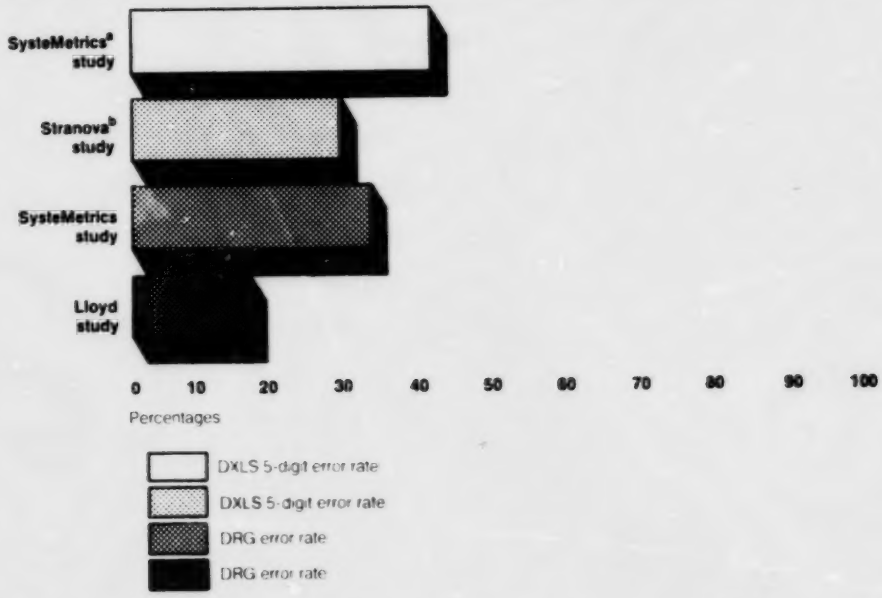
The study objectives were to:

- review the structure and process of the NPTF information system,
- evaluate the accuracy and reliability of the file,
- assess the implications that the NPTF deficiencies may have for casemix resource allocation, and
- recommend strategies for improving the quality of the NPTF.

The results of the SysteMetrics study showed even higher NPTF discrepancy rates than the previous two studies showed. As shown in figure 2.3, the DXLS (the diagnosis responsible for the major length of stay in the hospital) 5-digit discrepancy rate reported by the SysteMetrics study was 42 percent compared with a 30 percent discrepancy rate estimated by the Stranova study. In addition, the SysteMetrics study reported a 35 percent discrepancy rate for the DXLS DRG as compared with the 19 percent discrepancy rate reported by the Lloyd study.

[5]During this time, VA made many changes to the PTF and renamed it the New Patient Treatment File (NPTF).

**Figure 2.3: NPTF DXLS 5-Digit and DRG Error Rates**




[a] The DXLS 5-digit code represents the diagnosis responsible for the major length of stay in the hospital.

[b] In its weighted sample from eight hospitals, the Stranova study found an average error rate of 31.9% and projected an error rate of 30.2% for all cases in those hospitals.

The SysteMetrics study found that for the records with a discrepant principal diagnosis, 51.3 percent had physician-related problems and 76.3 percent had coder-related problems. A discrepant data element could have more than one source of error. A more comprehensive analysis, the implications for DRG resource allocation, and the study's limitations are presented in appendix III.

The SysteMetrics study also found that the average salary for medical record technicians is considerably less at VA than at private hospitals. The study used an estimated 1985 national average (projected from 1982 salary data collected by the American Medical Record Association and an inflation factor) for accredited record technicians and registered record administrators. The 1985 national estimate for average records technician salary was $22,151, which is 33 percent higher than the average salary of $16,604 for the VA medical record technician reported by medical information section chiefs responding to SysteMetrics'

survey. The 1985 national estimate for average registered record administrator salary is $30,175, which is 15 percent higher than the $26,310 average salary reported by VA medical information section chiefs. The study concluded that if VA hospitals are to compete successfully with private sector hospitals in their efforts to recruit medical records professionals, it is important that VA offer comparable compensation.

## VA's Efforts To Improve the Accuracy of PTF Data

VA has concentrated on improving the physician-provided data for coding. In October 1983, VA mandated that all hospitals create Data Validation Committees to:

"Establish an on-going data validation process at the field facility level to ensure accurate, timely, and consistent submission of data to the AMIS, RCS 14-4, PTF, 20% sample of outpatient Routing and Statistical Activity, PAID and CALM information systems."

Minutes of the meetings revealed a variety of approaches for correcting the acknowledged deficiencies. Among the actions suggested were:

- better education of "senior staff" (senior VA doctors) and "house staff" (residents and interns);
- special education or discharge summary review programs in different medical services, such as surgery or general medicine (where individual hospitals identified problems);
- concurrent medical chart analysis (daily review of patient medical records by a trained medical technician stationed on each medical ward of the hospital);
- development of diagnostic worksheets for use by residents in preparing discharge summaries; and
- development of lists of diagnoses, procedures, and complications that occur in 80 to 90 percent of the patients for particular medical services, clustered by related diseases and ranked by work units.

## Outpatient Data Base Problems

Workload data for VA outpatient clinics and nursing homes is reported by VA's Automated Management Information System (AMIS). When a veteran visits a VA outpatient facility, he or she may visit one or more clinics. A diabetic patient, for example, may visit an optometrist for a glaucoma exam, have a cardiac exam for circulatory problems, and then visit a dietician for dietary advice. Each of these visits constitutes a separate "clinic stop" and all are reported by AMIS. These reports are used

to estimate total workload in various clinics for staffing and budget formulation. They are based on a 20-percent sample of all outpatient visits and projected to the universe of all outpatient visits. But, there is reason to believe that the AMIS "clinic stop" data are not accurate. For example, in one hospital we visited, 40 percent of the patients did not return their clinic stop routing sheets. The Decentralized Hospital Computer Program (DHCP), now being installed in VA hospitals, should help overcome this problem by providing direct entry of workload data into the computer as the patient visits various clinics.

The Department of Medicine and Surgery's 1984-1989 ADP Plan highlights several other weaknesses in AMIS and how they affect other VA reporting systems:

- AMIS is a 20-year old system that is difficult to modify, does not meet current hospital management needs, and is not available in a form useful to hospital directors. AMIS reports are processed even if all data have not been entered or errors not corrected.
- Efforts to link AMIS with the PTF, CALM, and PAID have been only partially successful. Data elements vary in each system; reporting cycles for each system vary, and the information is thus of questionable reliability.
- Current reports rarely provide measures or indices to support modern hospital management or strategic planning. The PAID system, for example, only permits a person to be assigned to one cost center, while that person may actually work at two or more cost centers during a reporting period.
- The above problems have created a proliferation of hospital-specific and manual systems designed to provide the information managers desire and need.

VA does not emphasize the collection of AMIS information. The AMIS computer is housed at the Austin Data Processing Center. Field station AMIS coordinators, for whom this is usually a collateral duty, input information. Often they are lower-paid employees in the Medical Administration Service or, for example, the secretary to the station Management Analyst. The primary data collectors at each medical center are also usually lower-paid staff.

## Problems in the Accuracy of Financial Data

Information on the cost of providing medical care is collected in two main systems—the CALM and PAID systems. Each DM&S service estimates its allocation quarterly from a cost center basis (as recorded in CALM and PAID) to a program or functional area basis. These estimates are applied to the CALM and PAID costs to produce the RCS 10-141 report. The primary problems with the information generated from the RCS 10-141allocation process are that (1) VA hospitals lack detailed and standardized allocation procedures so that some allocations are not comparable, (2) the allocations are on such an aggregate basis (by functional area) that they have limited managerial usefulness, and (3) information reported may not be timely since the allocation process is performed quarterly.

DM&S collects its nonpayroll medical care costs in the CALM system. The CALM system captures the costs at the cost center level in each hospital (for example, nursing, laboratory, or radiology) and at the subaccount (subunit of object class) level. The hospitals record the costs as obligations when the goods or services are ordered and record the accounts payable when the goods or services are received.

DM&S records its payroll costs in the PAID system. Like CALM, PAID captures costs at the cost center level. Each DM&S service allocates quarterly its costs from a cost center level, as recorded in CALM and PAID, to a program or functional area basis. The personnel cost is allocated using estimates of the proportion of time spent on the program areas during the previous quarter. The services at a hospital submit their allocation estimates to the fiscal service at that hospital. Fiscal service reviews the allocation estimates and applies them to the CALM and PAID costs to generate the RCS 10-141 cost allocation report (formerly the RCS 14-4 report). The services receive the RCS 10-141 approximately 1 month after the quarter for which the report applies.

## Problems in the Cost Allocation Process

DM&S recognizes that there are many problems with the RCS 10-141 cost allocation process. These problems also affect cost reporting for nursing home care and outpatient care since the RCS 10-141 reports costs for these types of care as well as inpatient care. The Data Validation Committees identified problems in the RCS 10-141 reports which we then grouped into two major categories:

- allocation problems: lack of detailed and standardized allocation procedures for the hospitals and the use of whole percentage points which do not allow small enough quarterly cost transfers and

- inaccurate information: hospitals having to resubmit cost information deemed incorrect by VA's Central Office.

## Allocation Problems

VA has formed a committee to formulate detailed and standardized allocation procedures for the various cost centers. We believe that the RCS 10-141 allocation process could be improved by standardizing the procedures. However, we also believe that the RCS 10-141 report has limitations, as described below. Documentation from one hospital provides an example of the limitations of the RCS 10-141 as a cost accounting report.

"The RCS 14-4 [now known as the RCS 10-141] is a cost distribution rather than a cost accounting report; consequently, it cannot be used to determine true costs of programs. To illustrate - in 1981 this medical center opened a new Domiciliary building. This resulted in a 122 bed reduction from the previous bed level. Based on the previously reported RCS 14-4 costs, 30 FTEE [full-time employees] and $807,000 from the medical center's budget was withdrawn at the time of activating the new facility. This was considered appropriate within the applied methodology at the time, yet, in fact, there were only 7 FTEE directly assigned to the Domiciliary and the costs of operations in the new facility were slightly greater than the costs of the old Domiciliary. This process of cost distribution is highly sensitive to error in the RCS 14-4."

The DM&S 1984-1989 ADP Plan also cites a problem with the RCS 10-141 process:

"The inability to break down staff assignments also creates errors when costs are assigned to a specific area of the hospital, under procedures outlined in the Report of Medical Care Distribution Accounts (RCS 14-4). Instructions for assignment of staff to multiple cost centers are not clear, so various methods are used which makes comparison among hospitals impossible. The lack of refinement in the assignment of costs creates problems in implementing a new DM&S system of allocating resources to the medical centers [The Casemix Resource Allocation Methodology], which relies on collecting information by patient categories not by bed section."

DM&S neither captures nor assigns costs on a per procedure, per patient, or per DRG basis. As described above, DM&S attempts to allocate costs from a cost center basis (as recorded in CALM and PAID) to a program basis via the RCS 10-141 allocation process. Since DM&S allocates costs on such an aggregate basis, it encounters problems with arriving at accurate estimates of per patient costs. For example, VA's Office of Budget and Finance reviewed the hospitals' per diem rates reflected on the RCS 10-141 report for the third quarter of fiscal year 1984 and found the differences between the high and low per diem rates shown in table 2.3.

**Table 2.3: Range of Hospitals' Per Diem Rates**

| | Low | High |
|---|---|---|
| General medicine | $ 78.05 | $ 401.35 |
| Neurology | 67.48 | 300.28 |
| Intensive Care Unit (ICU) | 99.91 | 2,115.54 |
| Dialysis | 67.02 | 545.74 |
| Surgical ICU | 7.89 | 3,170.56 |
| Operating room | 267.11 | 9,965.20 |
| VA nursing home | 1.38 | 122.20 |

## Inaccuracies

The Surgical Service at VA's Central Office experienced problems with the accuracy of the cost data on the RCS 10-141. The cost data are important to Surgical Service because the data are used to develop budget estimates for expanding Surgical Service programs—for example, the cost of expanding the cardiac surgery program. On the RCS 10-141 dated as of June 30, 1984, Surgical Service discovered that some amounts appeared to be unreasonably low. Therefore, the report was run again and the following amounts were adjusted as shown on table 2.4.

**Table 2.4: Questionable RCS 10-141 Data**

| | First run | Second run |
|---|---|---|
| Unit cost for total direct medical care for cardiac surgery | $632.84 | $6,632.84 |
| Total direct medical care and asset acquisition | 176.14 | 8,176.14 |
| Surgical unit cost | 107.24 | 3,107.24 |

Similarly, the RCS 10-141 report dated for the fiscal year ending September 30, 1984, contained a per case cost of $64.99, which to Surgical Service was an obvious understatement. It believes that the per case cost as reported on the RCS 10-141 is inaccurate. The RCS 10-141 uses the number of cases as recorded in the PTF file to find the average cost per case. Surgical Service does not believe this is an accurate way to arrive at the average cost per case because, in many instances, the number of cases in the PTF does not correspond with the actual number of cases treated for a given time period. Table 2.5 compares data on cases reported to Surgical Service by various hospitals with the number of cases reported on the RCS 10-141.

Table 2.5: Number of Surgical Cases Reported by RCS 10-141 and by Hospitals

| Hospital | RCS 10-141 cases | Hospital cases |
|---|---|---|
| Brockton | 166 | 222 |
| Buffalo | 343 | 160 |
| Chicago | 112 | 159 |
| Denver | 186 | 129 |
| Little Rock | 142 | 195 |
| Memphis | 214 | 150 |
| Miami | 203 | 70 |
| San Francisco | 134 | 99 |
| Seattle | 584 | 64 |

## Shortcomings in Financial Data Systems

In addition to the previously mentioned problems in the accuracy of VA's financial data, there are two important functions which its financial data systems do not perform. The systems do not provide reports on variances in planned and actual costs for medical procedures and have no modeling capability. As a result, VA lacks certain types of information that could be useful in containing costs and in planning for new programs and services.

## No Variance Reporting

VA's monthly variance reports include planned versus actual obligations and workload indicators at the appropriation account level for top management and object class for hospitals, but they do not include variances for the specific inputs to medical care such as tests, x-rays, and other medical procedures. We believe an essential component of cost control is a variance reporting system that compares standards for the inputs of medical care to the actual costs of these inputs.

An example of a variance reporting system that uses standards for the inputs to medical care is the system used by the New England Medical Center. The Center, located in Boston, Massachusetts, is a private hospital which utilizes a management information system based on the costing and control of the "intermediate products" used in providing inpatient care. VA is currently assessing the applicability of such a standard product costing model. (See appendix IV for a description of the Center's management information system.) The Center's system provides two types of variance reports—one to doctors on the quantity and type of medical services used in patient treatment and another to the various department heads responsible for providing each type of service doctors order. Doctors and department heads are held responsible only

for those components of care which they control. Doctors, for example, control patient treatment and are held accountable for the type and quantity of medical services used in treating a patient for a specific illness. Department heads, on the other hand, are held accountable for the unit cost of the types of services for which they are responsible. The Center breaks down the costs of the medical inputs into nine variables. Reports indicate where there are variances among the nine variables so that the manager(s) responsible for controlling these costs can better isolate the cause(s) for the variance.

The Center believes that its management system has significantly reduced the number of tests and procedures ordered, as well as its departments' budgets. In reviewing 400 selected cases over a 2-year period ending in May 1985, the Center estimated that the use of variance reports on medical services had permitted it to reduce use—compared to past patterns—by 32 percent in labs, 12 percent in radiology, 6 percent in operating rooms, and 11 percent in daily care.

We believe that a variance reporting system as described above would be useful in containing costs by

- assisting management in isolating the causes of excessive costs for medical tests and procedures,
- assisting physicians and management in monitoring variances in use of medical tests and procedures compared to historical treatment patterns, and
- enhancing accountability and therefore increasing the incentive for department managers and physicians to meet established standards.

In addition, the data base created by the variance reporting system described above would allow for the clinical review of treatment patterns by type of illness (DRG), physician, type of patient, etc. The historical treatment patterns and other clinical information could be used for training, quality assurance reviews, and other types of assessments of treatment patterns.

## No Modeling Capability

Partly because its systems are old, DMAS does not currently incorporate a "modeling" capability within its primary financial management systems. A modeling capability allows many types of "what if" scenarios to be analyzed, such as the effect of workload increasing a certain percentage or the financial impact on the hospital of a new program or service. At least one hospital—Gainesville, Florida—does its own modeling

on a mini-computer using data from CALM, PAID, and RCS 10-141. In addition to analyzing "what if" scenarios, the mini-computer is used to make other projections, such as whether current spending patterns (in relation to past spending patterns) might lead to overspending in certain budget categories or whether the current workload level is too high to be supported by current resource levels. The Gainesville fiscal officer believes that these projections are making a significant contribution to decisionmaking. Gainesville plans to expand the use of this type of information by linking the mini-computer with other data sources, such as the PTF.

The New England Medical Center uses a fairly sophisticated modeling function. Specifically, it has the capability to

- ask "what if" questions at the clinical service, DRG, physician, and cost center levels to determine the effects on activity, cost, and profits;
- estimate the financial and operating impact on the hospital of new programs or services;
- gather data to establish cost-containment incentive systems for physicians or department managers;
- identity the financial contributions of each case type or clinical subspecialty to the hospital; and
- simulate the impact of alternative wage and salary programs and inflation scenarios.

For example, the Center has used the modeling capacity to estimate the financial and operating impact of a liver transplant program on the hospital. The Center used the modeling function to build a "least cost" and a "worst case" (high cost) scenario so that its management would be able to assess the feasibility of offering liver transplants with existing staff and facilities given the resources required as determined by the modeling function. The Center has also used the modeling function to evaluate other new programs, such as heart transplants, as well as to develop fixed product prices for health maintenance organizations regarding such case types as cardiac catheterizations and coronary artery bypass grafts.

Table 2.6 summarizes our reviews of the quality of information in key financial management systems, based on this report and our VA Profile. We believe that DMAS decisionmaking in the above areas would be improved with the availability of the information that a modeling function could provide. A modeling module has been added to VA's Hines pilot management information system project. (See table 2.7.) We believe

VA should include a modeling function in whatever management information system design it may ultimately select.

## How VA Collects Costs

VA collects costs in its present systems (CALM and PAID) at a cost center and subaccount (object class) levels. VA monitors these costs at these levels against budgeted amounts. However, VA does not collect costs at a more specific level such as DRG, patient, or medical procedure which would allow more effective control of costs through such means as variance reporting. In addition, VA does not collect costs by program or functional area but uses estimates by the service chiefs (RCS 10-141 allocation process) to arrive at estimated functional area costs. These estimated costs are, in some cases, not accurate and not timely. VA's bone marrow program is an example of a program which, because it was unable to use VA's present systems to capture per patient costs, has developed its own manual cost collection system to arrive at per patient costs.

**Table 2.6: Quality of Information in Key Financial Management Systems[a]**

| | Reliable | | |
|---|---|---|---|
| | Generally accurate | Consistent over time | Comparable among facilities |
| BIRLS | No | Yes | N.A.[b] |
| PTF | No | No | No |
| AMIS | No | No | No |
| PAID | Yes | Yes | Yes |
| CALM | Yes | Yes | Yes |
| RCS 10-141 | No | No | No |
| | Useful | | |
| | Timely | Complete | Managerially relevant |
| BIRLS | No | No | Yes |
| PTF | No | No | Yes |
| AMIS | No | No | Yes |
| PAID | No | No | Yes |
| CALM | No | No | Yes |
| RCS 10-141 | No | No | Yes |

[a]The assessments in this table are based on our VA Financial Management Profile, VA's DM&S ADP plans for 1984 to 1989 and 1985 to 1990, and interviews with VA officials.

[b]Not Applicable.

## Collecting Costs With Current Systems

DM&S bases the casemix portion of a hospital's operating budget on DRG workload and costs as measured by the casemix methodology. Though a growing portion of a hospital's budget will be based on the casemix, currently a major portion of a hospital's budget is determined by incrementally adjusting a hospital's object class expenses, such a personnel, travel, and utilities. The hospital then allocates these estimated expenses to the cost centers within the hospital, such as pharmacy and laboratory. VA's accounting systems track and report expenses by object class for each cost center. Personnel expenses are recorded in PAID, and non-personnel expenses in CALM. But VA formulates its budget for medical care on a program or function area basis, for example, medical and surgical bed sections. These costs are reported through the RCS 10-141 cost allocation report. However, as described previously, the allocation process used to distribute the cost center costs to a program area has weaknesses.

The CALM system records obligations as they are incurred but does not match costs with the delivery of services. The RCS 10-141 report is an attempt to allocate the costs in CALM and PAID from a cost center level to functional or program areas, but the RCS 10-141 does not allocate to a patient or DRG level. The current method for cost allocation relies on the hospital service chiefs' estimates of the percentages of their resources spent on different functional areas. These estimates are gathered quarterly by each hospital's fiscal service. Processing by fiscal service and by the Austin, Texas, Data Processing Center takes 1 month. Cost allocations, as represented on the RCS 10-141 report, are then sent to hospitals 1 month after the quarter for which the costs are reported.

DM&S does not use standard costs in its financial reporting system. Such costs could be used to generate variance reports so that performance could be monitored more effectively. DM&S sends quarterly reports to each hospital showing how well that hospital is faring relative to other hospitals regarding the cost of a weighted work unit. However, there are no reports which compare standards for the cost of those components so that management can isolate the reasons for excessive costs.

## Collecting Costs With Special Systems

We reviewed the per patient cost and overall full time employee estimates for the unique Seattle VA hospital bone marrow transplant program (as shown in the DM&S FY 1986-1990 Program Plan). We examined this program because the hospital has established a special record-keeping system to track the costs of the program. Its efforts illustrate

how difficult it is to obtain individual patient clinical and cost data using VA's current clinical and accounting reports.

## Brief History of the Bone Marrow Program

Before the Seattle hospital performed its first bone marrow transplant in 1982, all such treatments for veterans were performed in private hospitals. Seattle became the first VA hospital to perform such transplants because of its affiliation with a university medical center and a cancer research center, both leaders in the bone marrow transplant field. Seattle opened its own 4-bed transplant unit in 1982.

In its first 27 months of operation (September 1982 to November 30, 1984), the Seattle hospital performed 33 bone marrow transplants. During fiscal years 1983 and 1984, an additional 21 transplants were performed on veterans at private hospitals. VA estimates the average cost of the VA operations at $78,000 per patient, while during fiscal years 1983 and 1984 the fees at private hospitals averaged $121,000 each. The survival rate for the VA patients (18 of 33) is higher than that for private patients (5 of 21). However, comparing both costs and survival rates is clouded by a number of extenuating circumstances, two of which are major.

- Costs for the Seattle patients are only those costs attributable to the bone marrow transplant procedure itself; costs for fee-basis patients (those treated in private hospitals at VA's expense) include the total hospital bill, not just that portion attributable to the bone marrow transplant.
- Fee-basis patients may be more ill than those treated at Seattle. These patients are sent to private hospitals because to require them to wait for a bed at Seattle could be life threatening.

## Collecting Costs for Bone Marrow Patients

The Seattle hospital calculates the per patient transplant costs for fee-basis patients by adding up the hospital bills and dividing them by the number of patients. The bill for one such patient was $360,000; only a few such bills can easily increase the average costs for fee-basis patients. Costs for transplant patients at Seattle are determined using a special set of reports unique to this particular program. The system is almost entirely manual and relies on little of the usual financial and workload data and reports produced by VA's primary financial management systems—PAID, CALM, RCS 10-141, AMIS, or PTF.

Drawing on its experience managing VA's fee-basis transplant program, Seattle developed a series of special reports to collect the per patient costs for bone marrow transplants. The system depends heavily on the cooperation of the various cost centers and services within the hospital that provide support for the transplant program; they are required to collect and report monthly costs to the fiscal office. These reports are used to support budget requests for both equipment and personnel.

Services are required to segregate transplant costs by filling out special reporting forms. As an incentive to report costs accurately, the services are not reimbursed for their bone marrow related costs until they have provided satisfactory justification for the costs incurred.

Costs for future years are based on actual past per patient costs as determined by these special reports, plus increases expected as a result of an increase in the number of patients treated. These estimates are forwarded to the program office in Washington, D.C., which adds a 10-percent adjustment to account primarily for inflation. The DMAS budget office projected the actual costs for 1986 through 1990.

This manual collection of per patient bone marrow transplant costs is time consuming, and feasible only because of the small number of patients treated. A bone marrow patient may have several hundred laboratory tests each month. The head of the laboratory service must manually sort and count each type of test, using work-order slips in the patient's folder. Then, using the per test costs previously calculated, a software spreadsheet program totals the costs for each type of test and the monthly laboratory costs for each patient. The total time required each month is about 20 hours, according to the laboratory service chief. Similar work-intensive calculations must be made by other services. We believe this type of information should be routinely available from VA's financial management reporting systems since there is clearly a need for per patient cost information, as demonstrated by the bone marrow program described above and by the use of the Casemix-based Allocation Methodology described earlier in this chapter.

## Management Information Projects

VA is conducting three management information system projects in order to investigate methods for improving its management information. In addition to the budget execution criteria already discussed, we believe that VA should consider the cost-effectiveness of the three projects in meeting the following management information criteria. The systems should produce data that

- are accurate, complete, timely, reliable, and useful for all phases of the financial management cycle;
- are consistent and comparable over time and between VA hospitals;
- match costs with the delivery of services (for example, both intermediate products such as laboratory tests and costs of treating individual patients or specific illnesses);
- can be arrayed in a variety of ways for management (for example, by doctor, cost center, DRG, clinical subspecialty, and bedsection);
- are compared to standards for the inputs to medical care, such as medical procedures and tests, so that a variance reporting system can be utilized;
- can be aggregated to produce reports useful for all levels of management from laboratory chiefs to the Chief Medical Director and VA Administrator; and
- can provide projections of various types, such as what financial and operating impact a new program or service would have on VA, and what the effects on activity and cost would be given alternative scenarios at the clinical service, DRG, physician, and cost center levels.

We reviewed the projects with these criteria in mind. The following discussion provides a brief description of the three projects. Table 2.7 shows whether the three projects address the above criteria. (The projects are discussed more fully in appendix IV.)

VA's three management information system projects are the Long Beach project, the Hines/Boston project, and the Brockton/West Roxbury project. Their purpose, costing strategy, and clinical data strategy are discussed below.

### Long Beach

The project's primary focus is on building an integrated data base containing DHCP patient level cost and clinical data and data now transmitted to central systems (for example, PAID, CALM, and RCS 10-141).

The project's costing strategy has two stages:

(1) The development of patient-specific actual costs for inclusion in the data base so that costs can be aggregated to levels that are meaningful to management (for example, laboratory).

(2) The development of standard costs that can be used to monitor personnel utilization and costs.

| | |
|---|---|
| | The project has no clinical strategy. Instead, it will concentrate on patient-specific data which will be available for aggregation in whatever way is deemed appropriate. |
| Hines/Boston | The project's primary focus is twofold: developing a comprehensive series of reports, including cost, demographic, clinical, and operational information for managers and developing "patterns of care" (groups of homogeneous diagnoses) which can form the basis for utilization review, quality assurance, and cost analysis, for which normative treatment protocols can be developed by local physicians. Its costing strategy will focus on developing actual patient-specific costs which, grouped by diagnosis, DRG, or other case mix groupings and organizational units, are key elements in a number of reports. Its clinical strategy is to develop standard treatment protocols or patterns of care for case groupings (usually subgroups of DRGs) by consensus of local physicians; these are used for education and training of interns and residents, quality assurance, and utilization review. |
| Brockton/West Roxbury | The third project will focus on developing reports for responsibility center and higher-level managers designed to provide variance information. Its costing strategy is to develop locally-based standard costs for responsibility centers and DRGs, so that variances can be computed and analyzed. The project's focus is on developing and controlling the cost of intermediate products, whose cost and use is seen as the key to controlling medical care costs. The total cost of all the intermediate products used to treat a patient would constitute the cost of treating any particular patient or illness. Its clinical data strategy is to develop standard protocols for DRGs and other case groupings by determining the type and quantity of all intermediate products used in such cases over a period of time in a specific VA hospital. The sum of these costs will become the standard costs for that DRG from which variances are computed. |

Table 2.7: Analysis of Management Information System Projects

| Selected criteria | Does the project address the criteria? Long Beach project | Hines/Boston project | Brockton/West Roxbury project |
|---|---|---|---|
| (1) Data should match costs with the delivery of services. | Yes | Yes | Yes |
| (2) Data should be able to be arrayed in a variety of ways such as by DRG, doctor, cost center, clinical subspecialty, and bedsection. | Yes | Yes | Yes |
| (3) Data should be compared to standards for the inputs to medical care. | Yes | No. This project does not include plans for utilizing cost standards for the inputs to medical care. The project utilizes clinical standards (patterns of care as described in appendix IV). | Yes. This project is reviewing a particularly well-developed variance reporting system. See appendix IV for a description of this variance reporting system. |
| (4) Data should be able to provide projections of the financial and operational impact of new services and of various "what if" scenarios. | No | Yes | Yes. See page 56 for a description of this modeling function. |

## Conclusions

We believe that the budget execution processes of the Department of Medicine and Surgery are basically sound but that the information provided by its management information system does not adequately support these processes. As major strengths in the budget execution process, we identified the following:

- VA has in place the framework of a sound financial management process which could form the basis of a new management information system approach.
- VA reports variances between actual data and operating plans for selected accounts to VA managers.
- VA recognizes the weaknesses in much of the data now used in budget execution and is undertaking several efforts, such as the three management information projects, to improve the usefulness and reliability of the data.

- VA establishes annual financial and program plans for each department, office, and major program.
- VA performs midyear and end-of-year assessments of financial and program performance compared to plan.

Our analysis showed that VA's information, however, would be more useful to managers if it were improved in the following areas:

- VA allocates medical care costs from a cost center basis to a program-level basis using estimates from the service chiefs of a hospital. VA should capture and report costs on a more specific basis, such as by DRG or individual patient. This information could be used for many managerially useful purposes, such as allowing hospitals to better control excessive costs related to DRGs and providing a basis (through comparisons of how different patients are treated) for quality control and peer review. Since VA allocates hospitals' budgets on the basis of workload and costs as measured by DRGs, its accounting system should be able to capture workload and cost by DRG.
- Monthly variance reports include planned versus actual obligations and workload indicators at the appropriation account level for top management and object class for hospitals, but they do not include variances for the specific inputs to medical care such as tests, x-rays, and other medical procedures.
- VA does not incorporate a modeling function within its management information system to permit managers to analyze projections of the probable consequences of alternative changes in budget workloads and costs.

## Recommendations

We recommend that the Administrator of VA take the following actions to improve VA's budget execution for medical care:

- Use a cost accounting system which captures costs and workload data on a more specific and managerially useful basis, such as DRG or individual patient. The capture of data by DRG would permit hospitals to better control excessive costs related to DRGs. Since VA allocates hospital budgets on the basis of workload and costs as measured by DRGs, its accounting system should be able to capture workload and costs by DRG. All three of the cost accounting projects discussed in appendix IV have as an objective the allocation of costs on a per patient and other useful bases.
- Set standards for many of the inputs to medical care so that managers could be provided reports showing variances between planned versus

actual workload and costs. The Brockton/West Roxbury project is reviewing a well-developed variance reporting system that might be applicable.

- Incorporate a "modeling" function within its management information system to permit managers to analyze projections of the probable consequences of alternative changes in budget workloads and costs. (Two of the projects discussed in appendix IV include a modeling function.)

# Department of Medicine and Surgery Budget Formulation

Three weaknesses in VA's financial management processes and systems hinder effective budget formulation, although these problems affect other phases of the financial management cycle as well. First, as stated in chapter 2, VA lacks accurate clinical and financial data on its medical care programs. This issue has, by our assessment, an adverse effect on all phases of financial management. (See chapter 4.) Second, the data that are gathered in budget formulation are categorized differently from those in the execution and planning phases; in addition, there are no reliable crosswalks among the categories. Third, budget formulation is dominated by the Central Office, to the exclusion of field offices and the hospitals themselves—an issue that overlaps with the planning phase.

How VA allocates its medical care budget to its hospitals was explained in chapter 2. This chapter provides a brief look at how VA formulates that budget. The criteria against which the budget formulation process is reviewed are described, with special emphasis on the data needed in the process. The next two sections address the issue of inadequate clinical and financial data by exploring how VA could use DRGs to build a more accurate budget for both acute care and other programs. The problems in the linkage among phases of the financial management process are illustrated next. The effect of centering the budget formulation process at the Central Office is reviewed, followed by our conclusions and recommendations.

## VA's Current Medical Care Budget

The growth rate of VA's medical care budget is declining, as table 3.1 illustrates. Indeed, the requested increase of 2.5 percent for fiscal year 1986 is actually a budgetary decrease in real dollars, since the general rate of medical care inflation is estimated to be greater than 2.5 percent. As the Congress and the President continue their deficit reduction efforts, VA, like many government agencies, could experience additional cuts or little real budgetary growth for the foreseeable future. This prospect, combined with growing veteran demand for medical care, reinforces VA's need to manage its resources as efficiently as possible.

**Table 3.1: VA's Medical Care Budget**

Dollars in thousands

| | Fiscal year | | | |
|---|---|---|---|---|
| | 1983 | 1984 | 1985[a] | 1986[a] |
| Budget | $7,816,775 | $8,300,867 | $8,929,689 | $9,155,000 |
| Increase over previous year | 661,658 | 484,092 | 628,822 | 225,311 |
| Percent increase | 9.2 | 6.2 | 7.6 | 2.5 |
| Percent growth in medical care inflation | 7.5 | 6.1 | 6.6 | 6.2 |

[a]Estimated.

Identifying and controlling the cost increases in just two categories of VA's medical care budget could lead to improvements in VA's ability to control overall medical care costs. As Table 3.2 indicates, over 75 percent of VA's medical care budget is composed of salaries and benefits and supplies and materials.

**Table 3.2: Salaries and Benefits and Supplies and Materials Compared to the Total Medical Care Budget**

Dollars in thousands

| | Fiscal year | | | |
|---|---|---|---|---|
| | 1983 | 1984 | 1985[a] | 1986[a] |
| Salaries and benefits | $4,979,838 | $5,239,848 | $5,603,256 | $5,590,119 |
| Supplies and materials | 1,015,539 | 1,124,768 | 1,189,973 | 1,295,301 |
| **Total** | **$5,995,377** | **$6,364,616** | **$6,793,229** | **$6,885,420** |
| Total medical care budget | $7,816,775 | $8,300,867 | $8,929,689 | $9,155,000 |
| Salaries & benefits and supplies & materials as percent of total budget | 76.7 | 76.7 | 76.1 | 75.2 |

[a]Estimated.

VA is unable, using current management information, to readily identify the causes of major increases in its budget, such as which drugs are being over prescribed, which drugs could be replaced by more reasonably priced medicines, or which procedures are being performed too frequently or unnecessarily. VA's current budget process of incrementally increasing the budget each year does not look at the makeup of the budget in meaningful detail. However, this type of in-depth look is required in order to build a budget that reflects as accurately as possible the resources needed to provide medical care to VA's projected caseload.

## Purpose of Budget Formulation

The purpose of budget formulation is to develop detailed, realistic estimates of the resources needed to efficiently operate the programs chosen in VA's planning and programming phase. To do this, budget formulation is extremely dependent on the quality of information developed in the budget execution phase of the financial management cycle. Not only should this information be accurate and consistent over time, it must also be collected and reported in a way that makes it readily available and useful for budgeting.

This requires the integration of information from all phases of the financial management cycle, especially budget execution and budget formulation. Estimates of future resource needs can be more accurate if they are developed using actual accounting and program data from prior budget years that compare budgeted with actual expenditures and program results. Variance between the actual and budgeted expenditures could be analyzed. Using actual data gives more realistic estimates of future years' budgets because the entire financial management system is iterative; new plans are influenced by past results. This fact reemphasizes that budgeting and accounting need to use the same principles and, preferably, the same categories of information.

## Criteria for Budget Formulation

Our criteria for a sound budget formulation process are similar to those for budget execution:

- Budget and account on the same basis.
- Match the cost of services with the delivery of services.
- Measure outputs as well as inputs.
- Distinguish between spending for current operations and capital investment.

Budgeting and accounting on the same basis will allow actual results to be measured against plans. Budget estimates can then be based on an analysis of variance from program and budget plans. This is difficult when budgeting and accounting use different principles and/or categories. If VA, for example, allocates hospital budgets on the basis of workload and costs as measured by DRGs, its accounting systems should also capture workload and cost by DRG. This also improves budget execution by allowing a hospital to identify the cost of each DRG and take action to lower costs where appropriate (as explored in chapter 2).

The cost of resources used should be matched with the services that an agency is delivering, and the cost of the material or service should be

recorded in the same financial period in which the material is used or service provided. This permits comparison of the cost of the same service over time and the cost of similar services within the organization and allows managers and policymakers to make better informed cost-benefit evaluations.

Incorporating performance measurements into the system of budgeting and management reporting provides the capability to relate program/project cost with output, to determine if objectives are achieved at an acceptable cost. Analysis of how costs change in proportion to outputs assists future program planning. The "inputs" into the system are the resources used in treating eligible veterans. The "outputs" are treated veterans. The ability to match and measure these two shows VA how and for what its resources are being used and if they are being used effectively.

The fourth criteria requires that funding requirements for capital spending be presented in a separate budget from that for medical care. VA currently has this type of budgeting system in place and is required to justify the capital investment portion of its budget on a separate basis from that of its other appropriations.

Applying these principles to VA medical care budgeting requires linking all phases of the financial management process. The planning/programming phase should analyze the demand for care, project the number of veterans of different eligibility categories that may be expected to request VA medical care, and estimate the types of medical care these veterans are likely to need—the projected "casemix." (VA's medical care planning process is discussed in the next chapter.)

Information from the execution of prior budgets provides a basis for analyzing variances from the prior year's budgeted casemix and costs. Results of these analyses can be used to refine and improve the development of budget estimates for the current budget. Budget execution should also capture program costs using the same information and principles used to develop VA's medical care budgets. It should be possible as well to match the services used in treating a patient with the cost of providing those services.

Budget analysts should use the results of audit and evaluation reports, from both within and outside VA, to identify areas of cost savings and other efficiencies that can be used in budget development. The fundamental premise to this view of budgeting is that decisionmakers should

have information that associates services delivered with the cost of those services. This permits comparison of planned versus actual costs and program activities. Such information provides a basis for managerial accountability and refinement of the information used in both the planning/programming and budgeting phases of the financial management cycle.

## Budget Formulation Must Answer Specific Questions

We believe the budget formulation process should address the following questions:

- What types of medical care is VA now providing, for whom, and at what cost?
- What types of medical care is VA projecting it will be providing in the next budget year and in future years, to whom, and at what estimated cost?
- What are the causes of variances from prior cost and casemix projections?
- What efficiencies in health care delivery are identified by analyses of these variances?

### Data Are Needed To Answer Those Questions

In order to answer these questions, the following data are needed:

- clinical and cost data on providing care to specific categories of eligible veterans, such as those with service-connected disabilities and those unable to defray the cost of their care;
- projected casemix for budget year;
- data on the clinical resources used to treat specific types of illnesses or provide specific types of care;
- the cost of providing this treatment or care; and
- estimates of resources needed, and thus the cost, for treating the expected casemix for the budget year.

## How To Build a More Accurate Budget for Acute Care Treatment

As stated in chapter 2, VA does not have the ability to accurately gather cost and clinical information for its medical care programs. Budget formulation requires this information. It further requires either the ability to combine the two in a meaningful way for budget development and analysis or requires that reliable crosswalks exist to combine the information. There are several ways to accomplish the former. For instance,

if the proper information is available, budgets can be developed by combining the cost with clinical data to get a per procedure or per patient cost. Another way is through the use of the Diagnostic Related Groups (DRGs).

## Using DRGs To Improve Accuracy

The DRGs are a means of classifying patients diagnostically into medically meaningful categories. DRGs are fully defined in chapter 2, but to reiterate briefly, the categories revolve around an acute care patient's clinical attributes and the medical procedures used in treatment. Originally developed by the private sector for purposes of cost containment, utilization review, reimbursements, and quality assurance, DRGs have also been used in federal programs. They currently are used to determine payments under Medicare's Prospective Reimbursement System for hospital care, a $48.2 billion program.

VA has recognized the benefits of DRGs for many of the same reasons as the private sector and is currently reimbursing non-VA hospitalization based on DRGs. DM&S is using an operating budget allocation system based on DRGs, and VA is considering whether or not to use DRGs as a basis for billing by VA hospitals.

The benefit in using DRGs in VA's budget formulation process would be that DRGs would put both cost and clinical information on a basis that would better relate projected workload to budgetary needs. For example, one of the DRG categories is coronary artery disease. Assume VA has estimated the average cost of an episode of care (admittance to discharge) of one patient suffering from coronary artery disease at $3,500. During the previous year, VA treated 2,000 cases of coronary artery disease. For the upcoming budget year, VA estimates it will treat 2,050 cases. VA should therefore budget $7,175,000 ($3,500 x 2,050) to cover the cost of the DRG category coronary artery disease for the upcoming budget year. VA currently builds its budget incrementally by bed section and program area. VA does not base its budget on this type of a systematic estimate of the casemix it expects to treat in the budget year. As illustrated above, two estimates are involved in this budget projection. It is therefore extremely important that the information used to make these projections is the best available. DRGs do not change the need for useful data, but they do allow the data to be used in a more meaningful manner.

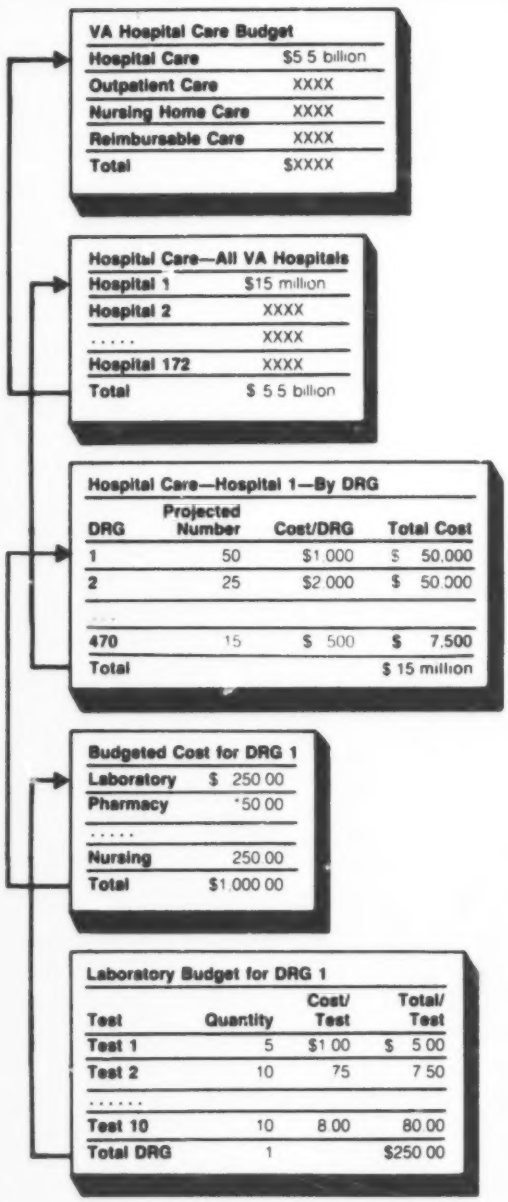
VA currently uses 467 DRG categories representing specific care groups and 3 DRG categories representing miscellaneous care groups. To build a

DRG-based medical care budget, VA would have to estimate a cost for each DRG category and estimate the numbers of patients to be treated in each DRG category during the upcoming year. VA has already provided medical districts with a DRG projection model for use in medical care planning. The information from this model also could be used for budget formulation. However, as discussed in the previous chapter, VA does not yet have the ability to capture costs by DRG.

In addition, the 467 specific care DRGs can be grouped into 23 Major Diagnostic Categories. For example, all diseases and disorders of the respiratory system are contained in one category. Using Major Diagnostic Categories would allow planners and budgeters to work with less detail, but still maintain some of the benefits of analyzing trends within these areas. Obviously, analyzing 467 separate areas would give much better information than analyzing 23. However, in switching from VA's current incremental budget process to a DRG-based system, it might be easier to start with the fewer categories and eventually include all 467 DRGs. This is especially true if each hospital is going to cost each DRG or Major Diagnostic Category.

The example in figure 3.1 shows one possible way to aggregate the cost developed in the execution phase and the clinical information from the planning/programming phase into a VA hospital care budget. There are many different ways that the data in the chart could be displayed. For example, instead of viewing it from a DRG basis, a manager might want to view the same build-up from a physician or program basis. The flexibility of the "roll-ups" (aggregation of the cost information from bottom to top) is limited only by the availability of useful information to support the system. The better the information, the easier it is to allow a hospital system to define and group patient care activity from many different managerial perspectives and at many different organizational levels.

**Figure 3.1: Example of DRG-Based Hospital Care Budget for VA**


VA Hospital Care Budget
Hospital Care $5 5 billion
Outpatient Care XXXX
Nursing Home Care XXXX
Reimbursable Care XXXX
Total $XXXX
Hospital Care—All VA Hospitals
Hospital 1 $15 million
Hospital 2 XXXX
. . . . . XXXX
Hospital 172 XXXX
Total $ 5 5 billion
Hospital Care—Hospital 1—By DRG
DRG Projected Number Cost/DRG Total Cost
1 50 $1 000 $ 50.000
2 25 $2 000 $ 50.000
. . .
470 15 $ 500 $ 7.500
Total $ 15 million
Budgeted Cost for DRG 1
Laboratory $ 250 00
Pharmacy 50 00
. . . . .
Nursing 250 00
Total $1.000 00
Laboratory Budget for DRG 1
Test Quantity Cost/ Test Total/ Test
Test 1 5 $1 00 $ 5 00
Test 2 10 75 7 50
. . . . . .
Test 10 10 8 00 80 00
Total DRG 1 $250 00

## This Method Has Several Advantages

There are four significant benefits to building the budget using DRGs or Major Diagnostic Categories, including a more

- accurate workload-based budget than VA's current method of incrementally developing the budget,
- realistic presentation of information for the justification of budget increases or the program effects of budgetary cuts,
- equitable framework for distributing budget cuts, and
- appropriate setting for comparing the results of individual hospital operations.

First, assuming that DRG cost and clinical information are accurate, a budget built using the DRG method would more accurately reflect changes from year to year than would an incremental budget. The incremental budget deals in gross terms, such as a 10 percent inflation rate or a 5-percent increase in usage added to the overall budget. A DRG-based budget would have 470 separate areas which could be analyzed and individually adjusted in developing the budget.

Whether VA uses DRGs or Major Diagnostic Categories, many of the categories may actually show decreased usage trends, while others may increase, and still others may stay the same. Costs may vary for each in a similar manner, but VA's current method of budget development cannot detect these changes. Thus, it is important that each category be viewed on an individual basis. The total budget figures derived from either the DRG or VA's current incremental method may be the same. But, the makeup of the total would clearly show the casemix or type of services VA expected to provide in the budget year.

A second benefit of having accurate information to build the budget is that it would be easier to either justify increases in the budget or to identify the program effects of proposed budgetary cuts, because the dollars can be tied directly to numbers of veterans served or not served. VA's current method of budget formulation does not allow it to tie changes in the budget to specific patient groups or services for the simple reason that, at present, changes are made and the budget is built at a highly aggregate level. This can be illustrated by examining the fiscal year 1986 congressional justification documents, which divide the $5.5 billion requested for VA hospitals into only four budget categories. While this may be sufficient for an overview of VA medical care, it is not sufficiently detailed for managing a medical care system. Yet, VA's current clinical and financial systems make it difficult to provide meaningful breakouts much below those shown in the budget justification.

A third benefit to VA's budget process is that in the event of budget cuts or increases, funds could be more readily distributed to the areas of greatest workload and need. If VA had built its DRG budget by eligibility category, it would be possible to allocate remaining funds first to hospitals with the highest service-connected cases, as shown in their DRG budgets. Thus, VA could better direct funds to those hospitals serving the greatest number of veterans with high priority claim to care.

The fourth advantage is that using DRGs to budget and account would make comparisons of the results of operations much easier than currently allowed using VA's RCS 10-141 cost allocation system. Comparisons among hospitals, impossible under VA's present system, would be made relatively simple by virtue of the fact that the comparisons would be on the basis of individual or groups of DRGs. The development of accurate DRG costs on a hospital basis would establish a continuously updatable method of comparison. Hospital managers would then have a starting point for improving their medical care delivery services and a standard to strive toward. Additionally, knowing how hospitals compare with one another could foster more communication and the exchange of good management information-gathering techniques.

Combining the use of DRGs with VA's implementation of its on-line clinical data system (DHCP) could lead to better, more detailed reporting of management information. Such information as physician treatment patterns and drug use profiles would become routine management tools in VA, as they are currently in many private hospitals.

There are some exceptions to the advantageous use of DRGs. For instance, procedures placed in one of the three miscellaneous DRG categories would need to be handled on an individual basis or on a collective basis using some common pricing arrangement. Also, such nondirect medical care costs as educational time for physicians would need to be handled individually.

## Capability To Provide the Information Required

While VA can provide some clinical information by DRG category, it does not collect cost by DRG. VA already routinely gathers data on the number of patients treated during the year by hospital and by DRG category. It currently uses this information to determine the amount of the casemix allocation. The casemix system redistributes moneys among the 172 hospitals based on actual measures of patient care activity. The same system could be used to provide the clinical information base for the budget formulation process.

Developing the costs of individual DRG categories would be much more challenging than was developing the clinical information. As discussed in chapter 2, VA currently places some value on each DRG by assigning it a weighted work unit value. VA uses the total of the units by hospital to determine the casemix allocation. The units are a nationwide average, whereas VA would need to develop cost for DRGs on a per hospital basis for building DRG-based budgets. The weighted work units, however, can provide a starting point for developing the individual DRG costs.

Since February 1985, VA has been working on a weighted work unit system based on its own estimates of DRG costs. According to the DMAS, this system is ready for implementation as soon as VA Headquarters gives its approval. DRG budget systems operational in private hospitals and Medicare's prospective reimbursement system might aid the development of VA DRG costs. Additionally, the three VA Management Information Systems projects use costing strategies which use DRG costs.

## Developing VA's Own DRG Cost

In order to develop its own DRG cost, VA would need to establish some type of standard cost per DRG. Setting such a cost appropriate for any hospital system could be done in two ways. One would be to establish a standard treatment protocol or procedure for each DRG. The total costs of these procedures would be the standard cost per DRG. This is the approach being taken in the Hines Medical Information System development project. A second approach is to determine the actual treatment procedure used in each hospital, based on a representative sample of cases in each DRG, and thus determine the average cost in each hospital of treating that DRG. The New England Medical Center Model has adopted this approach. Either method could be used to develop standards for use in variance reporting and budgeting. (Both models are described in appendix IV.)

Both approaches could use an "intermediate product" approach to DRG costing. Intermediate products are all the medical procedures and tests that comprise the treatment for a specific DRG. Anything that adds cost to the typical patient's hospital stay should be included. Once the standard costs have been developed, using one of these two methods, it is relatively simple to roll-up the costs of the intermediate products to arrive at a total cost per DRG. However, this may be difficult to do at present because VA has not required its hospitals to develop accurate cost data for specific lab tests or other procedures performed.

Budgeting using DRGs is dependent upon the development of actual DRG costs, and these in turn depend upon the accurate costing of the intermediate products used in treating any specific DRG. While the DHCP system could be used to capture the clinical information needed to support a DRG-based budgeting system, it may not have the central processing capability to handle an intermediate product approach to DRG costing. The more powerful DRG systems, such as that of the New England Medical Center, require large capacity processors that lend themselves more to regional computing systems than the hospital-based computing systems that DHCP uses.

## Building a More Accurate Budget for Outpatient Care

In addition to the approximately 1.4 million inpatients admitted to VA hospitals each year, VA operates nursing homes and rehabilitation facilities, as well as a large outpatient treatment program. During fiscal year 1984, for example, VA treated

- 16.9 million outpatients at 226 outpatient clinics;
- 7,686 spinal cord injury inpatients and 11,310 outpatients with a total of 32,523 visits;
- 17,187 veterans in VA nursing homes with an average length of stay of 2.9 years; and
- 13,053 veterans in VA domiciliary facilities with an average length of stay of 4.1 years.

Due to the difference in treatment, procedures, and in the methods currently used to collect costs, acute care DRGs do not provide an appropriate budgeting framework for assessing the resources needed to provide nonacute care. However, the DRG concept can be applied to develop appropriate per patient and casemix budgetary models for rehabilitation, nursing home, and ambulatory (outpatient) care. The basic concept—patients with similar medical care needs will use similar resources during the course of their treatment—is applicable to costing all major types of medical care.

Outpatient visits account for the majority of patients outside the DRG process, and VA expects the numbers to grow rapidly. VA health care officials have placed increasing emphasis, as have other health care providers, on the outpatient area because it provides a proven means of helping control the rising cost of medical care. DM&S's stated policy is that the least expensive level of care consistent with the medical needs of the veteran should be used. Assuming a veteran can be treated just as

effectively on an ambulatory basis as on an inpatient basis, appropriate medical care would point to using the less expensive method.

Budgeting for outpatient care, as well as long-term care, could be performed similarly to inpatient care under the DRG system. For instance, the estimated number of outpatients projected in the planning process could be multiplied by the average cost of treating one outpatient visit. A more accurate method, however, would be to develop a cost per clinic stop or per procedure, then to multiply the numbers of veterans estimated to visit the clinic or need the procedures by the cost per stop or procedure, yielding the budgeted amount for that portion of the outpatient budget. Each of these methods gives estimates of the amounts that should be budgeted. The only difference is the accuracy and the detail of the results. The level of detail increases from outpatient visit, to clinic stop, to outpatient procedure.

## Necessary Data Are Not Currently Available

As with inpatient costs, outpatient cost estimates depend on useful information to ensure their accuracy. VA currently is unable to estimate outpatient costs any better than it is able to estimate inpatient costs because the information used is not considered accurate. The AMIS system records the workload data for outpatient visits. AMIS receives the outpatient data from a "clinic stops form" carried by the patient as he or she visits different clinics during an outpatient visit. Many times the form only records the fact that an outpatient visit was made, when it should record the number of clinics visited. Additionally, many outpatient visits and clinic stops are never recorded because the forms never reach their destination. According to VA officials, this is because the patients who are to take the forms from one clinic to another do not understand their importance and end up throwing the forms away.

According to several VA officials we interviewed, another problem is that as much as 20 to 30 percent of outpatient visits may never be recorded in AMIS. If this is correct, VA's estimate of 18.8 million visits in fiscal year 1986 may be underestimated by as much as 5.6 million. One reason outpatient visits are understated is that outpatient clinic visits by intermediate and long-term care patients are not recorded in AMIS because VA considers them to be inpatients.

VA officials have informed us that the new methodology for allocating fiscal year 1986 long-term care budgets to VA medical centers does not

include a method for counting outpatient clinic visits by inpatients. Consequently, facilities with extended care units are providing services that are not accounted for in terms of either workload or resource allocation.

Incidentally, domiciliary patients, who are similar to nursing home patients except that they do not normally need as much medical care, are treated as outpatients and, as such, their visits are recorded in AMIS when they seek outpatient care.

Prior to fiscal year 1986, each hospital received a standard per diem payment for each intermediate care or long-term care patient. Beginning in fiscal year 1986, VA instituted a new methodology for allocating hospital long-term/intermediate care budgets and ambulatory care budgets. This methodology is based on patterns of consumption for each type of patient (called Resource Utilization Groups for long-term and intermediate care patients and Consumption Related Groups for ambulatory care). The costs used in both models are those reported in the RCS 10-141 cost allocation reports, the same reports used for acute care inpatient budget allocations. Consequently, both of the new models have the same data problems encountered whenever this cost allocation method is used. These problems were discussed in detail in chapter 2.

VA is currently installing its on-line computer system, DHCP. This system could potentially alleviate the problems with the clinic stops form and make it possible to obtain timely and accurate outpatient and clinic stop counts for planning and budgeting. DHCP would not help correct the problem of recording the treatments of intermediate and long-term care patients. The solution to this problem requires changing the way these patients' treatments are recorded. If it is determined by VA that these patients' treatments should be captured as outpatients, DHCP offers the means to track intermediate and long-term care patients, as well as all other patients seeking outpatient care. As VA expands its nursing home and other long-term care capacity in anticipation of the needs of an aging veteran population, we believe it is increasingly important that it have accurate budgetary models of the resources needed to provide that care.

## Problems in Linkage Among Phases of Financial Management

Linkage among the phases of the financial management process can be provided in one of two ways—all phases of the process can use the same categories for data collection and analysis or there can be reliable crosswalks between different categories used in each phase. As table 3.3 shows, VA does not use the same categories for health care data collection and analysis in planning, budgeting, and budget execution. A contributing factor to poor integration between the phases of the overall financial process is the inadequate link between budgeting and accounting.

The quarterly RCS 10-141 cost allocation report is the primary linkage, or crosswalk, between budget execution and budget formulation. The RCS 10-141 is used for cost estimating and cost/benefit analysis in planning, for estimating program costs in budgeting, and for the casemix adjustment to hospital operating budgets in budget execution. Yet, as discussed in chapter 2, the costs reflected in the RCS 10-141 are prone to error and inconsistencies.

**Table 3.3: Categories VA Uses To Plan, Budget For, and Manage Its Medical Care Appropriation**

| Budget execution | Budget formulation | | Planning |
|---|---|---|---|
| **Cost center** | **Activity** | **Object class** | **34 program areas** |
| Pharmacy | Surgical Beds | Travel | Pharmacy |
| Spinal Cord Injury | Medical Beds | Utilities | Spinal Cord Injury |
| Neurology | Psychiatric Beds | Rent | Neurology |
| Nuclear Medicine | Nursing Home | Personnel | Nuclear Medicine |
| Laboratory Services | Contract Hospital | Equipment | Laboratory Services |
| Psychiatry | Outpatient Care, etc. | Supplies | Academic Affairs |
| Libraries, etc. | | Land and Structures | Ambulatory Care, etc. |
| | | Printing, etc. | |

## Problems in Linking Different Categories of Analysis

VA provides the Office of Management and Budget (OMB) and the Congress with two different types of budget estimates—program estimates (for example, hospital bed sections and outpatient costs) and object class estimates (for example, personnel, travel, utilities). Program costs are derived from the RCS 10-141 reports, while object class costs are captured in each hospital's various "cost centers" by the PAID and CALM accounting systems. Every 3 months, each cost center estimates the percentage of its total workload, and therefore costs, attributable to each program area for which it has provided support or services.

We have formulated an abbreviated breakdown of how costs in the ambulatory care program area would be collected in cost centers and the RCS 10-141 costs to which they might be allocated. Ambulatory care costs would be accumulated in the following cost centers:

- medical,
- surgical,
- laboratory,
- pharmacy,
- nuclear medicine,
- radiation therapy,
- nursing service,
- rehabilitation medicine service,
- dietetics,
- social work,
- dental service,
- dialysis, and
- anesthesiology.

The cost centers may then allocate their costs quarterly to such RCS 10-141 categories as:

- outpatient care-VA facilities (summary),
- medicine,
- surgery,
- ambulatory surgeries,
- special psychiatric treatment,
- general psychiatric treatment,
- ancillary services,
- rehabilitative and support services,
- dental procedures, and
- support for dental procedures.

Not all cost centers will have assisted every program area. These quarterly estimates are based primarily on workload as reflected in the PTF, VA's major source of inpatient workload data, and the monthly AMIS workload reports. But, as discussed in chapter 2, both PTF and AMIS workload figures are not always reliable. Further, simply because 50 percent of a laboratory's total number of lab tests were done for the outpatient care area does not mean that 50 percent of that laboratory's total costs are attributable to work done for the outpatient care operations of a hospital. The type of lab test and the cost of each test determine total costs, not the aggregate measure of the total number of tests completed. In addition, laboratory service may or may not have an accurate count of the total number of tests done for each program area, much less the costs of the tests performed for the outpatient care area. The RCS 10-141, then, is an approximation of costs associated with each program area, based on workload measures that are themselves often

approximations. For this reason, hospitals get cost figures, like those mentioned in chapter 2, which show they can treat a patient in the surgical intensive care unit for as little as $7.89 per day—a cost that is clearly erroneous.

An example using ambulatory care illustrates why this allocation process creates linkage problems among the three phases of the financial management cycle. Ambulatory care is 1 of the 34 program areas VA uses for health care planning. Because it is assumed that care provided on an outpatient basis is cheaper than hospitalization, VA has directed its health care planners to identify ways of substituting ambulatory for inpatient care wherever possible. To assess the cost-effectiveness of increasing ambulatory care, budget execution reports should provide planners information on the current costs of treating patients on both an inpatient and an outpatient basis. However, because VA does not know the cost of providing any particular treatment for a patient on either basis, it is difficult, if not impossible, to estimate the cost efficiency of expanding any particular clinic to accommodate more patients. This, in turn, creates a problem for both planners and budget analysts, who realize that the data reported by VA's cost information systems may not be accurate. Consequently, they cannot say for sure what is cost-effective and what is not.

VA is promoting ambulatory care because other health care providers are using it to contain costs. VA assumes this will work in VA as well. However, VA does not have the information it needs to analyze more specific ways to become more cost-effective and to better link budgeting with programming and budget execution.

## Central Office Dominates Budget Formulation

As explained previously, VA basically develops its medical care budget by making incremental adjustments each year to various program and object class budget categories. Because the process is centered at the DM&S Central Office, VA hospitals and regional office involvement is limited. Currently, budget formulation field involvement is limited to submitting program plans through VA's planning process. Basically, program plans are developed by the districts, synthesized at the regional level, and then forwarded to the Central Office. The process is known as MEDIPP—Medical District Initiated Program Planning. (For further discussion, see chapter 4.) Although field representatives have been involved in ranking MEDIPP initiatives at the DM&S Central Office, DM&S does not use field participants in the budgeting process.

As discussed in chapter 4, the changes introduced in VA's MEDIPP for 1985 may provide a greater role for the regional offices and medical districts in developing budgets. But, this is by no means assured because the role each will play has yet to be worked out in actual practice. Greater field involvement in the budgetary process would increase field understanding of how budgetary ceilings affect the ability of DM&S to fund but a small portion of the MEDIPP initiatives districts propose. It could also foster increased understanding by the Central Office of how budgetary choices affect the ability of VA medical centers to provide health care to veterans.

Because budget formulation is almost wholly a Central Office function, this creates a misunderstanding in the field as to how MEDIPP is reflected in the budget. Many VA field personnel involved in the MEDIPP process felt that the needs they developed through this process would be satisfied through the budget. In fact, it has been very difficult for any of the MEDIPP initiatives to make their way into VA's operational budget. In fiscal year 1985, for instance, only about $12 million in MEDIPP initiatives were reflected in the President's budget. The Congress restored about $25 million to DM&S, but only a small portion of this figure was MEDIPP-generated. There was an even greater disparity between what the field generated in the fiscal year 1983 MEDIPP process and what was reflected in the fiscal year 1986 budget. The 1986 President's budget took only those MEDIPP initiatives that identified cost savings, even though they were tied to other initiatives which would have increased VA's need for funding. Therefore, rather than causing the VA budget to be larger, the President actually used MEDIPP to cut VA's medical care budget by $15 million. The Congress, which usually restores some of the presidential cuts, actually cut the medical care budget further. VA's medical care appropriation from the Congress was reduced by approximately $50 million.

While many of the cuts made to MEDIPP initiatives in the DM&S budget were made during OMB review of the VA budget, the bulk of the cuts were made within VA prior to the budget's submission to OMB. Table 3.4 shows a more complete breakdown of how the 1983 MEDIPP initiatives were treated during the fiscal year 1986 budget process. The bold column in table 3.4 is significant because it shows how few MEDIPP initiatives find their way into the DM&S budget. There appear to be two primary causes: the method DM&S uses for selecting MEDIPP initiatives for possible inclusion in the budget and the overall budget ceilings under which VA develops its health care budget.

**Table 3.4: 1983 MEDIPP Initiatives as They Were Reflected in the FY 1986 Budget**

Dollars in thousands

| | Dollar value of approved initiatives considered for funding | Dollar value of initiatives approved by program areas | Dollar value of initiatives approved by DM&S | Dollar value of initiatives approved by VA Central Office | Dollar value of initiatives approved in President's budget |
|---|---|---|---|---|---|
| | $1,340,000 | $641,704 | **$239,953** | $111,448 | $(15,470) |
| Percent as compared to initiatives originally considered for funding | 100 | 47.9 | **17.9** | 8.3 | −1.2 |
| Percent as compared to President's '86 budget of $9 155 billion for DM&S | 14.6 | 7 0 | **2.6** | 1.2 | −.2 |

## Few MEDIPP Initiatives Included in the Budget

In reviewing MEDIPP initiatives, DM&S considers not only those initiatives contained in the district MEDIPP plans, but additional initiatives proposed by the 34 program offices or otherwise generated in DM&S's Central Office. The 1983 district MEDIPP plans contained about 2,700 separate actions for possible inclusion in the fiscal year 1986 budget. (The 1983 MEDIPP plans were submitted in November 1983, and the fiscal year 1986 budget proposal was developed in the spring and summer of 1984.) Of the 104 initiatives DM&S considered for inclusion in the fiscal year 1986 budget, more than half, 53, were developed in DM&S's Central Office. While several of these Central Office proposals were aggregations of several similar district proposals, district proposals must still compete with those of the Central Office for inclusion in the DM&S medical care budget. Our interviews did not indicate a wide understanding of this process by field personnel.

Also limiting the number of MEDIPP proposals that can be funded is the relatively small growth in VA's medical care budget since MEDIPP was begun. For example, the fiscal year 1986 budgetary increase of 2.5 percent is less than the general rate of medical care inflation. Such limited budgetary growth leaves little room for program growth and expansion. Yet MEDIPP plans through 1984 were developed without regard to budgetary constraints. MEDIPP plans for these years were supposed to identify all actions needed to meet all medical care needs of the eligible veterans expected to request VA care. This has simply not been budgetarily feasible. MEDIPP plans, which until 1985 focused largely on program growth and the establishment of new programs, ran directly into the wall of limited budgetary resources. This limited budgetary growth has required that MEDIPP initiatives be funded primarily through the identification of program efficiencies or by reducing some program areas. As

already discussed, VA has little of the information it needs to identify potential areas of program efficiency, and there are often political and other constraints, as well, on reducing particular programs or services to veterans. Thus, the current budgetary environment leaves little room for funding MEDIPP initiatives that require additional resources.

## Conclusions

The DM&S budget formulation process is designed to provide both an aggregate program level and an object class perspective on VA's health care budget and needs. This design has several strengths, which are listed below.

- VA has in place the framework of a sound financial management process, which could form the basis of a new budget formulation approach.
- Budget formulation and audit/evaluation are well-linked. Audit reports are routinely used in budget formulation.
- VA has a structured approach for capital budgeting that clearly separates capital and operating budget requests.
- VA does try to use past and projected aggregate workload (output) indicators and rough estimates of program costs (inputs) to build the medical care budget.
- VA recognizes many of the weaknesses in the data now used in budget formulation and is undertaking several efforts to improve the usefulness, accuracy, and reliability of those data.

We believe, however, that there are four basic problems with current VA medical care budget formulation.

- The data used to build the DM&S budget, particularly program costs, are often questionable and are not necessarily comparable between hospitals or consistent over time. This hampers budget analysis and VA's ability to develop budget estimates based on reliable, actual past cost data for delivering health care in VA facilities.
- Planning/programming (MEDIPP) and budget formulation are only partially linked, making it more difficult to translate planning priorities into budget requests.
- These data problems have contributed to poor linkage between the budget formulation and the planning/programming and budget execution phases of the financial management process.
- The budget process is almost wholly a Central Office affair, with little field involvement or perspective. This contributes to misunderstanding in the field about how MEDIPP initiatives are considered in the budget process, and why so few MEDIPP initiatives have been funded.

## Recommendations

We recommend that the Administrator of VA take the following actions to improve VA's budget formulation process for medical care.

- Use a casemix approach to develop VA's budget. This would involve using costs which are more clearly related to VA's estimates of the medical needs of veterans.
- Develop an approach to budget formulation which emphasizes the role of field management, not only Central Office management. Such interaction would foster better communication and understanding between the participants and would improve the delivery of medical care.

We also recommend that when VA implements our recommendation for budget execution (see chapter 2) concerning the collection of costs and workload data by DRG and other specific categories, it use this information in developing a budget that ties funds expended to the services delivered. Using this approach would improve the linkage between budget formulation and budget execution. Collecting more managerially useful execution data also improves the results of the planning and programming process. This information could then be combined with execution data to develop more accurate budget estimates.

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# Veterans Administration Medical Planning

VA's structured planning and programming process provides a framework for analyzing and projecting the future medical care needs of veterans. The process' overall goal, as defined by VA, has been to identify the resources necessary to meet the future health care needs of all eligible veterans expected to request care. We found that VA's planning process does provide a multiyear framework for assessing veteran health care needs and estimating the resources required to meet those needs. The process has also fostered the development of data bases for medical care planning and budgeting that did not exist prior to its implementation.

The process, however, is relatively new and still evolving. Some changes have recently been made to link it more directly to the VA budget. Nevertheless, VA does not have the per patient or per illness clinical and financial information needed to properly assess the most cost-effective means of delivering health care. Its methods for projecting the demand for care and the kind of care needed are questionable. The guidance provided by the Chief Medical Director and medical program offices to those involved in the planning process is inadequate for clearly identifying major priorities.

This chapter begins with a brief overview of the importance of planning to the financial management process and then discusses the Department of Medicine and Surgery's (DM&S) ability to provide adequate, quality health care for veterans. Several external and internal factors that affect health care planning in VA are also discussed. A review of how VA's medical planning process works is presented. This is followed by our assessment of the process when compared to a model developed according to our criteria for a sound planning and programming process.

## Importance of Planning

Planning/programming is the initial phase of a sound financial management process. (See chapter 1.) Its purpose is to look beyond the next budget cycle in order to evaluate and select long-term goals and priorities, then analyze and choose cost-effective alternatives for achieving them. A sound planning/programming process should contain these basic elements:

- a mechanism to identify, evaluate, select, and prioritize realistic goals, objectives, and strategies for addressing major issues;
- a multiyear view for those programs where sound choices cannot be made using the 1-year budget horizon;

- a program structure that relates the costs of programs to the results produced or missions served;
- the ability to apply modern analytic techniques in assessing issues and alternatives;
- a means to aggregate program costs by major activity area;
- feedback mechanisms that reliably, consistently, and systematically develop and provide useful program performance information and analyses to those who need them; and
- a consistent mechanism to link the results of the planning/programming process with the budgeting process.

A reliable and useful planning/programming process is especially important to VA health care for several reasons. First, as discussed in chapter 1, the medical care needs of the veteran population are changing as that population ages. To meet those future needs, VA must begin identifying and implementing the necessary changes in its medical care system now. Secondly, effective construction planning and priority setting depend upon the results of the planning/programming phase analysis of the future medical care needs of veterans and the type, size, and location of the facilities required to meet those needs.

The aging of the veteran population poses a challenge for VA health care planners. The current VA health care system was primarily designed to meet the needs of a middle-aged, not an aging, veteran population. As discussed in chapter 1, VA is now trying to adapt its system to the needs of a veteran population whose median age—currently 52—is expected to increase each year between now and the year 2000. In its study, Caring for the Older Veteran, VA estimated that the number of veterans 65 and older will triple to 9 million between the years 1980 and 2000. As the veteran population ages, the type and quantity of health care veterans will need also changes. A greater need for nursing home care is the most obvious example. To care for older veterans, VA estimates that, in the year 2000, it will need from 128 to 189 percent more long-term care (nursing home and domiciliary) beds than it had in 1984.

VA planners must not only estimate the probable future veteran demand for VA health care, but also the types of care veterans are likely to need and the resources necessary to provide that care in the most cost-effective way possible. Changes in clinical resources necessary to meet identified future needs fall into four basic categories:

- additional staff and/or a different combination of staff skills in each medical facility or groups of facilities in a district;

- increased use of Department of Defense and/or private medical facilities (for example, greater use of sharing agreements);
- modification to and/or expansion of existing facilities through changes in equipment and/or construction; and
- the construction of new facilities.

Finally, VA planners must ensure that their plans satisfy the congressionally mandated minimum of 90,000 beds (Public Law 97-72), while maintaining a mix of beds that fulfills VA's obligations (Public Law 97-174) as the primary health care backup to the Department of Defense in times of war or national emergency. The challenge for VA planners is to integrate these various needs and requirements into a single health care plan that clearly identifies VA's health care priorities and the resources necessary to achieve them.

## Some Factors That Affect Health Care Planning

It is important to recognize several factors that affect, and sometimes complicate, VA health care planning. First, there is no clear consensus within the Congress, or among veterans groups, on what VA's health care priorities should be. In recent years, the Congress and its committees have, for example, directed VA to give greater attention to Agent Orange examinations, post-traumatic stress syndrome, veterans with service-connected disabilities, the health care needs of female veterans, and the needs of aging veterans (those 65 and older). The Congress has recently enacted legislation to limit VA health care for some categories of veterans to those who meet a means test.[1] VA was asked to estimate both the costs savings attached to any such change and its implications for veteran health care. As the Congress and the President search for ways to reduce the large federal budget deficits, congressional direction regarding VA health care may change, and VA is likely to be asked by the Congress to provide information that will assist members in evaluating the alternatives before them.

Additionally, VA plays a major role, through its hospitals and clinics, in providing clinical training for new physicians. One in five new doctors in the United States receives at least part of his/her clinical training in VA

[1]Title XIX of the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272), passed in April 1986, created a means test for certain types of care for most veterans who do not have a service-connected disability. It also increased the cost of VA health care to certain categories of eligible veterans. These changes are likely to change past patterns of veteran demand for care, and thus are likely to affect the assumptions about future demand on which VA health care planning has been based.

hospitals. Accreditation requirements for various clinical training programs often have resource implications such as minimum levels of equipment, staff, and facilities. With limited resources, VA must integrate overall accreditation requirements with the medical care needs of veterans.

Finally, altering the VA health care system to better meet the needs of older veterans may affect VA's ability to serve as the Department of Defense's primary health care backup for treating wartime casualties. VA is proposing, for example, to convert some acute care hospital beds to long-term care, an appropriate move for increasing VA's ability to provide long-term care to older veterans. However, acute care, not long-term care, hospital beds are most likely to be needed in time of war.

VA is limited in its ability to unilaterally reconcile these often competing interests. Their existence, however, points to the need for a flexible planning/programming process, supported by reliable, useful information, that is capable of adapting to the political and technological environment in which VA health care must operate. Moreover, an effective health care planning/programming process would help highlight for the Congress the policy choices posed by these competing interests and their probable implications for VA health care and its budget.

## How the Medical District Initiated Program Planning Process Works

Recognizing the need for a more structured planning process, DM&S introduced the Medical District Initiated Program Planning (MEDIPP) process in 1981. The purposes of MEDIPP included

- decentralizing medical care planning in DM&S, while assuring a planning perspective broader than that of the individual hospitals;
- providing a more systematic means of assessing the future medical care needs of veterans;
- developing a set of recommended actions necessary to meet these projected medical care needs; and
- providing a better link between medical care planning and the construction process.

The MEDIPP process consists of five basic phases. (See figure 4.1.)

(1) Planning guidance is sent to the medical districts by the Chief Medical Director, Regional Directors (beginning with the 1985 cycle), and DM&S program offices.

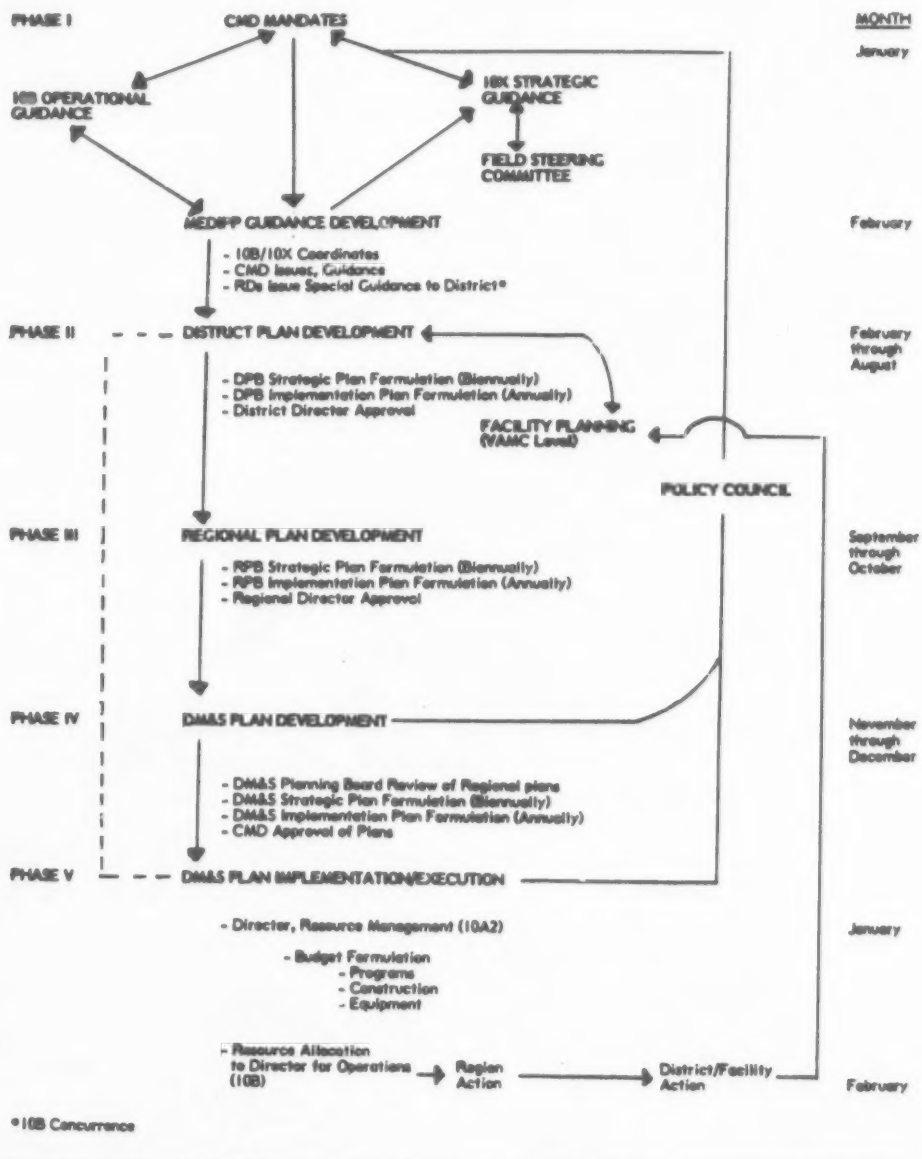
(2) District MEDIPP plans are developed with District Director review and approval; plans are then forwarded to the regions.

(3) The regions review and prioritize the plans, then produce a consolidated regional MEDIPP plan that highlights issues requiring Central Office review (new step for 1985).

(4) The DM&S Central Office reviews the regional plans and develops an approved set of prioritized MEDIPP actions for inclusion in the DM&S budget request.

(5) The Central Office gives feedback to the regions and districts on the results of its review of the plans.

**Figure 4.1: MEDIPP Planning Process Model**




Source: VA's Department of Medicine & Surgery 1985 MEDIPP Guidance, Chief Medical Director.

As defined by the 1984 MEDIPP instructions, the goal of MEDIPP is "to ensure that quality medical care is provided on a timely basis, within law and regulations, to eligible veterans now and in the future." The goal as stated does not explicitly encompass the setting of priorities or cost control. Therefore, using our criteria for a sound planning/programming process, we have restated the goals of MEDIPP as follows:

- To identify, evaluate, select, and prioritize realistic goals and objectives for VA health care and alternative means of achieving those prioritized goals and objectives in the most cost-effective manner possible consistent with quality health care.

We have used this restated goal in evaluating the MEDIPP process.

From 1981 to 1984, MEDIPP functioned primarily as a means for districts to estimate future veteran demand for care, and to identify, for the 5-year planning period, specific actions and resource requirements for serving unmet needs. In 1984, when the Chief Medical Director asked MEDIPP planners to identify any proposed actions that would require resources beyond the initial 5-year planning period, the planning horizon was extended to the year 2000.

## Role of Medical Districts

Although MEDIPP involves all levels within DM&S, including the medical centers, districts, regions, and Central Office, the process is centered in VA's 27 medical districts,[2] each with 4 to 10 VA hospitals and medical centers.[3] The Chief Medical Director provides guidance to the districts regarding MEDIPP goals and priorities, the assumptions to be used in planning, and the methodologies for estimating both workload and costs. Program specific guidance is provided by each of the 34 DM&S program offices. Districts also receive for the planning period veteran population projections for each of six age groups.

Final responsibility for each district's MEDIPP plan rests with the District Director, who is responsible for developing the district plan, facilitating the formal and informal communication within VA and with outside

[2]Prior to 1985, there were 28 medical districts and 6 regions. In a reorganization, the Chief Medical Director reduced the number of medical districts to 27 when he created a new region, raising the number of regions to 7.

[3]In its discussions of MEDIPP, VA refers to all VA hospitals as VA medical centers, or VAMCs. However, a VA medical center can consist of more than one VA medical facility, such as a hospital and nursing home. There are 172 hospitals in VA and 160 medical centers. In this report, we use the terms hospital and medial center interchangeably.

groups, and resolving conflicts within the district. The District Director is assisted by a District Planning Board, which represents all the hospitals in the district. The Board and District Director are supported by a full-time district planning staff and by Technical Assistance Groups, which are appointed periodically to study and make recommendations on issues of particular concern to the district, such as nursing home or cardiac care. Usually, these Technical Assistance Groups include representatives from each of the hospitals in the district.

The resulting district plan is supposed to identify all staff, construction, equipment, and other resources needed to meet projected demand for care in the district in a cost-efficient manner. To the extent possible, the district is expected to plan a mix of services among its facilities that permits eligible veterans to receive all needed care within the district.

Regional offices, beginning with the 1985 MEDIPP plans, review and consolidate the district plans into regional plans that both identify regional priorities and highlight issues that require Central Office review and resolution. Within the DM&S Central Office, the MEDIPP plans are distributed to the 34 program offices for review of issues within their individual areas of responsibility. Beginning with the review of the 1985 MEDIPP plans, a MEDIPP Review Board has the final authority to make recommendations to the Chief Medical Director for review and approval on proposals to be included in the upcoming budget. The Central Office then provides regions and districts with the results of its review and guidance for preparing next year's plans. (A more detailed discussion of the MEDIPP process and the roles of its participants is in volume 2.)

## Questions That Planning Must Answer

To identify the future health care needs of veterans, prioritize those needs, and determine the resources necessary to meet those needs, MEDIPP planners need data that will permit them to provide reasonable answers to such questions as:

- For what type of illnesses is VA treating veterans in such broad categories of eligibility as those with service-connected disabilities, those receiving veterans pensions, and veterans 65 and over?
- What clinical resources are used to treat specific illnesses or groups of veterans, and at what cost? Is it possible to provide the same level of care at less cost?
- What changes can VA expect in the number of veterans seeking care in each major category of eligibility, the geographic location of that

demand, and the types of illnesses for which these veterans seek care (that is, the future casemix VA must plan to treat)?

- What is VA's current capacity, in terms of facilities, equipment, and staff, to treat the type of casemix it expects in the future, especially the illnesses of veterans with service-connected disabilities and veterans over 65?
- What is the gap between VA's current clinical capabilities and the clinical capabilities needed to treat the expected future casemix?
- If the resources expected to be available in the planning period are insufficient to completely close this gap, what are VA's medical care priorities, and what resources are necessary to meet those priorities?

These questions encompass both strategic planning (estimating the future demand for VA medical care by eligible veterans and the resources necessary to meet those needs) and programming (assessing priorities and program choices within reasonable budgetary constraints).

## Data Needed To Answer Questions

To answer such questions, VA needs to integrate four types of data: eligibility, demographic, clinical, and financial.

Eligibility data identify the percentage of the total veteran population that is eligible for VA health care and which groups of eligible veterans have priority access to VA medical care under current law and regulations. These data provide planners with a basis for establishing medical care priorities when resources are insufficient to serve all eligible veterans.

Demographic data are needed to identify both veterans in certain categories of eligibility (for example, those 65 and older) and the geographic areas of current and expected demand. Geographic location is needed for construction planning and prioritization, either the location of new hospitals, nursing homes, and clinics or changes in current facilities that may require construction.

Clinical data on the types of resources needed to meet projected demand are directly related to the types of care veterans are expected to need. Different clinical resources are needed to meet an expected 50-percent increase in cardiac care rather than a 50-percent increase in cases of kidney disease. Estimating future clinical needs, then, requires knowing what illnesses veterans are now being treated for, the clinical resources used to treat those illnesses, and how any expected change in the mix of

illnesses for which veterans seek care will affect the clinical resources needed to provide that care.

Financial data are needed because maximizing veteran access to VA health care requires evaluating and choosing the most cost-effective means of treating the illnesses for which veterans are expected to seek care. This requires knowing the current cost of treating those illnesses and the cost implications of any changes in the way in which those illnesses are treated. For example, how many additional veterans could be served by applying the cost savings achieved by substituting ambulatory for inpatient surgery, where appropriate?

These data should be available to VA's health care planners and used by them to evaluate and plan for the future needs of eligible veterans requesting care. VA has most of the eligibility data it needs. In its fiscal year 1986 budget submission to the Congress, VA estimates the total number of veterans in each major category of eligibility for care, including veterans (1) with service-connected conditions, (2) receiving a VA pension, (3) who are age 65 or over, and (4) who may receive care if they cannot defray the cost of private care. VA also has much of the demographic data it needs for planning, including population projections for veterans in different age groups, their geographic location (home zip code), and historical data on the number of veterans under/over 65 who have requested care in the past.

However, as the chapters on budget execution and formulation showed (chapters 2 and 3), VA does not currently have one key component of an effective planning/programming process—reliable and consistent information on the clinical and financial resources used to treat individual patients or on diagnoses. Consequently, planners have little of the integrated clinical and financial data that would permit them to analyze the current costs of providing care to different types of patients, or to assess alternative ways of providing patient care in the future. Table 4.1 summarizes the major types of data needed for VA health care planning, their availability, and, if available, whether they are used in MEDIPP.

## Changes Made to the 1985 and 1986 MEDIPP Processes

In March and May 1985, VA's new Chief Medical Director introduced several major changes into the 1985 MEDIPP process. He expanded the role and responsibilities of the Regional Directors and divided MEDIPP into two separate processes. These included strategic planning, which is to be done every other year, and annual operational planning. The 1985

changes focused primarily on implementing the annual operational planning.

With the advent of the 1986 MEDIPP cycle, according to VA, the process has evolved into three components consisting of an Implementation Plan (identical to the budget year), a Strategic component that coincides with the budget "out-years," and a Long Range component for the year 2000. The plan itself would only contain actions specific to the implementation year and each of the strategic years where appropriate. There would be no actions specific to the Long Range component.

**Table 4.1: Major Types of Data Needed for VA Health Care Planning/Programming, Their Availability, and Use**

| Type of data | Currently available | | | Used, if available | | |
|---|---|---|---|---|---|---|
| | Yes | No | Incomplete | Yes | No | Partly |
| **Eligibility** | | | | | | |
| Number of service-connected veterans | | | X | | | X |
| Number of veterans 65 and older | X | | | X | | |
| Number of medically indigent veterans | | | X | | | X |
| **Demographic** | | | | | | |
| Age of veteran population | X | | | X | | |
| Geographic location of veteran population by age | X | | | X | | |
| Geographic location of veteran population by major eligibility category | | | X | | | X |
| Income data on veteran population | | | X | | X | |
| **Clinical** | | | | | | |
| Estimate of types of illnesses for which veterans will seek care | X | | | | | X |
| Data on clinical resources used to treat different types of illnesses | | | X | | | X |
| Data on clinical resources used in outpatient versus inpatient treatment | | | X | X | | |
| **Cost** | | | | | | |
| Current cost of treating specific types of illnesses or groups of veterans | | X | | | | |
| Data on cost implications of changing method of treatment or adding new types of treatment | | | X | | | X |

For their 1985 plans, for example, the Chief Medical Director directed the districts to prioritize the proposals in their 1984 MEDIPP plans under three different budgetary assumptions—no change (zero) in budget, a plus 5-percent change, or a minus 5-percent change. The purposes are to (1) have the medical districts identify the effects of resource constraints

on the planning priorities and choices that were developed in the absence of such constraints and (2) improve the link between MEDIPP, the budget process, and the allocation of hospital operating budgets. The budgetary base for these changes is the total fiscal year 1986 operating budgets for all hospitals and medical centers in the district.

The 1985 changes also increased the importance of the regions in MEDIPP. Prior to 1985, the regions' roles in MEDIPP were relatively minor and largely limited to commenting on the district plans prior to their submission to the DM&S Central Office. But now the regions are an integral part of MEDIPP. (See figure 4.1.) They provide guidance to the medical districts and consolidate and prioritize district plan proposals into a single regional plan for Central Office review. Thus, rather than reviewing 28 district plans, the DM&S Central Office will now give detailed attention only to the 7 regional plans. The regions are also responsible in their plans for highlighting major planning issues that require Central Office review and decision. The effect of these changes on MEDIPP plans and priorities has not yet been evaluated, since the first plans were submitted under the new process in November 1985.

## Assessing MEDIPP With a Planning Model

Using our criteria for the basic elements of a sound planning/programming process, we identified six major steps in an effective health care planning/programming process for VA, as well as the essential information needed in each step. This model offers a structure for assessing VA's MEDIPP process and the data it uses. The six basic steps are:

1) identifying, evaluating, selecting, and prioritizing national VA health care goals and objectives to guide planners;

2) estimating all expected veteran health care needs for the planning period;

3) prioritizing those needs;

4) identifying and assessing cost-effective ways of meeting as many of those prioritized needs as possible within realistic resource constraints;

5) choosing the most cost-effective means and identifying the resources needed to implement them; and

6) integrating the alternatives chosen into the budget process.

A full description of each step follows.

## Setting Realistic Goals and Objectives

Planning is driven by the goals and objectives established for it. Thus, planning goals and objectives must be realistic, specific, and measurable. Throughout its short history, MEDIPP goals have been unrealistic (budgetarily unaffordable) and often vague ("provide health care for the aging veteran"); consequently, success in achieving them has not been easily measured.

The goals and objectives of MEDIPP are defined by the Chief Medical Director. Specific planning directives are contained in both the Chief Medical Director's mandates and assumptions and in the program specific guidance provided by each of the DM&S 34 program offices. But prior to 1985, this guidance provided little recognition of the limited resource environment in which VA now operates and, if current budgetary trends continue, will operate in the future.

VA has defined the basic mission of VA health care as "provid[ing] medical care to all authorized veterans seeking care." [Emphasis added.] MEDIPP's goal, as stated in the Chief Medical Director's 1984 MEDIPP instructions, is "to ensure that quality medical care is provided on a timely basis, within law and regulations, to eligible veterans now and in the future." According to the Chief Medical Director's 1984 MEDIPP guidance, this means that:

> "VA will seek the resources necessary to enable the Department of Medicine and Surgery to meet its responsibility for providing quality medical services to veterans eligible to receive it."

However, as noted in chapter 3's discussion of budget formulation, DM&S has never requested the resources necessary to fund all MEDIPP initiatives that have received its approval. Realistically, achieving the mission and goal of VA medical care as stated in the MEDIPP instructions is limited by the resources at VA's command. Budgeted resources have not been sufficient to provide medical care to all eligible veterans requesting it. Thus, MEDIPP stumbled at the beginning, because its goal of serving all eligible veterans requesting care is not, in the current budgetary environment at least, a realistic one. Nor have its priorities been clear, specific, and measurable.

## Current Planning Priorities Are Unclear

The 1984 Chief Medical Director mandates identified four priorities to be addressed by MEDIPP planners:

- providing health care for the aging veteran,
- increasing ambulatory care and other alternatives to inpatient services where appropriate,
- extending comprehensive and integrated rehabilitation services, and
- providing comprehensive health care for female veterans.

The written guidance does not state whether the four priorities are equally important nor if they are listed in any particular order. Moreover, no clear indication is given in the guidance or in other MEDIPP instructions on how achievement of these priorities will be measured. However, the primary purpose of MEDIPP, through 1984, was to identify all the resources necessary to meet all anticipated veteran demand for care. There have been no milestones for achieving this and no clearly established criteria for choosing among identified needs if resources cannot support all justifiable requests. One such criterion would be to increase the number of veterans that VA can serve within existing resources by identifying less expensive methods of delivering quality health care. Of the Chief Medical Director's four priority areas, only one explicitly focuses on providing care at the least possible cost—increasing ambulatory care where appropriate. Ambulatory care is generally believed to be less expensive than similar care provided on an inpatient basis. VA officials told us that whether stated in the guidance or not, planners are supposed to identify the least costly alternative, consistent with quality care, for meeting the MEDIPP-identified veteran health care needs.

Moreover, it is not clear how the guidance from the 34 program offices fits with the Chief Medical Director's mandates and assumptions. The relative importance of different program areas in DM&S is dependent upon the overall medical care priorities of VA health care and the contribution each program area can make to achieving those priorities. Thus, program specific guidance should flow from VA's overall medical care priorities. Program area guidance should not constitute a separate, disparate set of issues that do not clearly relate to VA's overall priorities. Currently, program area guidance ranges from vague (blind rehabilitation) to specific (laboratory), and seems to reflect the specific interests of each office.

## Using Eligibility in Setting Goals

The reason for using eligibility criteria in setting planning goals and priorities is simple: laws and VA regulations do not give all categories of eligible veterans equal access to VA health care. When resources do not permit treating all veterans requesting care, veterans with service-connected disabilities have priority. The fact that VA must plan in a limited-resource environment provides a basis for considering eligibility categories when VA sets its health care priorities. VA already considers the needs of one category of eligible veterans separately in MEDIPP—veterans 65 and older.[4] Using eligibility categories in planning would permit VA to identify those categories of veterans whose needs cannot be served within the resources expected to be available in the planning period, as well as the additional resources necessary to meet those needs.[5]

VA does not systematically use eligibility categories in planning because it believes its mission is to serve the needs of all eligible veterans. As a practical matter, veterans with service-connected disabilities will almost always be treated, since they constitute only 30 percent of the veterans now treated in VA facilities. We identified at least two reasons for considering the needs of service-connected veterans separately. First, as already noted, VA's primary health care responsibility is meeting the needs of service-connected veterans. Therefore, MEDIPP plans should clearly identify their needs. Second, OMB has asked VA to give additional weight in its new methodology for prioritizing construction projects to those that will serve a significant number of service-connected veterans. These projects would initially be identified by MEDIPP. VA continues to believe that using service-connected needs as a criterion for choosing and ranking construction projects is inappropriate. The Construction Prioritization Methodology, consequently, contains no such criterion.

Among the benefits of using eligibility categories in MEDIPP are that eligibility categories provide

[4]At the time we conducted our review, all veterans 65 and older were eligible for free VA health care, regardless of their financial circumstances. However, Title XIX of the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272), passed in April 1986, does not distinguish between veterans of different age groups. Thus, veterans 65 and over who do not have a service-connected disability are now eligible for free VA health care only if they meet an income, or means, test. Veterans above that income level are eligible for VA medical care only if they agree to pay the applicable cost of their care as determined by VA.

[5]Of course, there will be some overlap between categories, as with a service-connected veteran who is medically indigent. In such instances, VA should count the veteran in only one category—the highest priority category for which the veteran is eligible.

- a clear set of criteria, grounded both in laws and VA regulations, for establishing a prioritized set of national medical care goals and objectives;
- an objective criterion for prioritizing construction projects (the greater the percentage of high-priority veterans served by a proposed project, the higher its priority); and
- a means of categorizing unmet demand for care, and identifying which groups of veterans, in specific geographic locations, cannot be served within existing and expected resources.

## Estimating Total Veteran Demand for Care

Since the goal of MEDIPP as we stated it—using our criteria for a sound planning/programming process—is to maximize veteran access to health care within expected resources (using the eligibility priorities established by law and regulations), it is important to estimate the total veteran demand for VA health care. This estimate also permits VA to answer questions from veterans and the Congress regarding which eligible veterans in which geographic locations are not receiving VA health care and why.

Estimating total demand for care has two components: the number of veterans in each major eligibility category that will request VA health care (total demand) by geographic area and the casemix they are likely to need care for. As discussed in the following paragraphs, VA's method for doing both could be improved.

### Estimating the Number of Veterans Requesting Care

Currently, MEDIPP planners estimate future veteran demand for care on the basis of a projection of past experience. The formula is given below.

| | | | | |
|---|---|---|---|---|
| Historical utilization of DMAS facilities and services by veterans in six age groups regardless of eligibility category | × | Projected veteran population in each age category | = | Future veteran demand for care |

There are several reasons why this approach may not accurately project future veteran demand for health care:

- Past utilization rates may not be predictive of the future because Medicare and Medicaid copayment and eligibility changes may make VA health care more attractive to certain categories of eligible veterans than it has been in the past. A 1983 study by District 26, for example,

found that when California tightened its eligibility standards for Medicaid, demand for VA medical care from medically indigent veterans under age 65 increased.

- According to VA's own study, Caring for the Older Veteran, the closer a VA facility is to an eligible veteran, the more likely he/she is to use it; thus, opening new facilities where none have previously existed could tap unmet demand that projections based solely on historic usage rates may not anticipate.
- Any changes in eligibility for VA health care will affect future demand, and this approach does not allow for capturing changes in different eligibility categories other than by age.[6]

A more appropriate approach would be projecting the total veteran demand based on at least the three or four largest categories of eligible veterans (adjusted for known overlap between categories). The reasons for using eligibility in projecting demand have already been discussed in the previous section. Further, planners should try to assess factors that may alter past veteran usage rates when applied to the future. MEDIPP does permit districts to demonstrate why projections based on historical usage may not be appropriate for them. A high level of unmet demand due to capacity limitations, for example, may artificially reduce current usage rates in a district. Building a new or expanded facility may result in demand greater than historical usage rates would have predicted.

VA does project demand by geographic area by using census data on the home zip code and age of veterans living in the primary service area of each hospital in the medical district. Veteran migration patterns clearly affect the location of future veteran demand for care. During the 1970s, for example, the veteran population in District 12, which includes almost all of Florida, grew 43 percent, while the national veteran population increased only 3.8 percent. In recent years, the District has found that the veteran population appears to be moving within the state from the Miami area to areas along the mid-Atlantic and gulf coasts of

[6]As noted in footnote 4 to this chapter and in chapter 1, Title XIX of the Consolidated Omnibus Reconciliation Act of 1985 (Public Law 99-272), enacted in April 1986, did alter veteran eligibility for some types of care. In our view, this action only strengthens VA's need to use eligibility data in MEDIPP. These changes are likely to alter future demand for care by some categories of eligible veterans and thus alter the validity of projections of future demand based solely on past utilization data.

Florida.[7] Consequently, the District has recommended that a new hospital be located in West Palm Beach, on the mid-Atlantic coast. In providing the districts with population projections for each hospital's primary service area, DM&S apparently does try to take into account veteran migration patterns.

## Projecting the Medical Needs of the Population

MEDIPP planners do not use any casemix projection model in projecting the types of care veterans may need in the future. Although the DM&S Central Office has provided districts with a model for projecting overall acute hospital care demand by illness using DRGs, districts were not required to use it for MEDIPP planning, and none of the four districts we visited did. Yet, as shown in chapter 2, the type of illness or other medical need for which a veteran seeks care determines both the clinical resources used and the cost of treating that veteran or any particular group of veterans—whether classified by age or eligibility for care.

The New Patient Treatment File (NPTF)[8] contains information on the diagnosis for which a patient is discharged, surgical procedures, age of the patient, patient transfers between bed sections during his/her hospital stay, and other valuable planning information. Even given the errors currently inherent in the NPTF (see chapter 2), it provides useful information on the types of care given to veterans in different eligibility categories in either the past year or the past several years, as well as data for assessing the types of resources necessary to treat those illnesses. The NPTF is already used by planners in VA's bedsizing model as one of the primary bases for projecting the number and mix of hospital

[7]Our recent report on District 12's proposed siting of a new hospital in Brevard County in eastern Florida illustrates some of the potential pitfalls of the current planning process which permits districts to establish their own criteria for hospital siting decisions. As the report notes, one consequence of this policy is that the basis for siting new hospitals could vary significantly among medical districts. Given this policy, the report recommends that the VA Administrator direct the Chief Medical Director to require VA regional and district planners to document the rationale or basis for their hospital siting decisions. See VA Health Care: Insufficient Support for Brevard County Location for New Hospital (GAO/HRD-86-67, June 1986).

[8]In 1984, VA altered the Patient Treatment File to improve the usefulness of the information in it. To reflect these improvements, VA refers to PTF records beginning with 1984 as the New Patient Treatment File. The major change was the addition of information on patient transfers between bed sections during their hospital stay, to better reflect actual patient usage of different bed sections. Prior to 1984, the PTF reflected only the bed section from which the patient was discharged, even though that may not have been the bed section where the patient spent the major portion of his/her hospital stay. For example, a patient may have been discharged from a general medical bed but spent the majority of his/her stay in the surgical bed section.

beds needed in the future. But we found no evidence that MEDIPP planners systematically use NPTF data for projecting the specific mix of illnesses for which veterans may need care and the resources necessary to provide that care.

We believe there are several advantages to a casemix-based planning approach which uses data that capture clinical resources usage and cost by type of illness or type of outpatient visit. The approach enables planners to

- assess alternative casemix strategies for different veteran eligibility categories,
- assess the likely clinical and financial impact of adding and/or eliminating medical care services as treatment patterns change,
- identify trends in the delivery of medical care and appropriately plan to adapt to changes in modes of treatment for specific illnesses or groups of illnesses,
- improve the linkage between the phases of the financial management process because the program categories used in planning (DRGs, clinic stops) are also the basis for budgeting and hospital management (budget execution), and
- provide a better basis for identifying and assessing construction needs.

There is one other compelling reason for using a casemix projection model in MEDIPP. VA has implemented the Casemix-based Resource Allocation Methodology for allocating hospital operating budgets. (See chapter 2.) Hospitals are now reimbursed at a set rate for each DRG they treat. VA is expanding this methodology for fiscal year 1986 to include outpatient and long-term care. Hospitals whose costs exceed the national average lose funds under the allocation formula. If hospitals are evaluated on the efficiency with which they deliver health care for specific types of illnesses, it follows that MEDIPP planners should try to project the types of illnesses a hospital should be prepared to treat. Planners could then try to assess current treatment patterns and possible changes in VA health care delivery that would increase the efficiency of hospitals in delivering various types of care.

VA's ability to implement a casemix model is limited by the accuracy, completeness, and usefulness of its current clinical data bases. Data in both the NPTF and the Automated Management Information System (AMIS), which are used to project outpatient and nursing home needs,

include errors and are incomplete. (See chapter 2.) This affects the accuracy of any projections based on those data. However, these are the only data currently available for planning, regardless of the approach used.

## Prioritizing Needs

In MEDIPP, districts are required to rank their goals and objectives, the identified medical needs for each, and the actions necessary to meet those needs. But there is no established, uniform process of doing this in all 27 medical districts. Consequently, results are not necessarily comparable, which poses a major problem in reviewing MEDIPP plans. All districts give prominence to the Chief Medical Director's four MEDIPP priorities, though each may treat them somewhat differently.

Eligibility considerations may or may not be a factor in prioritizing district needs. Districts whose caseloads include a higher-than-average percentage of service-connected veterans, such as District 12 in Florida, use this to justify additional resources. Since meeting the medical needs of the aging veteran is one of the Chief Medical Director's priorities, this group of eligible veterans is featured prominently in all MEDIPP plans we reviewed.

The goal of MEDIPP plans has been to identify the resources necessary to meet all future medical needs of veterans. Thus, in the six plans we reviewed, priorities were established largely on the basis of the needs of aging veterans, since that is where the greatest overall projected increase in demand is expected. District priorities and needs are then reviewed and reordered by the program office reviewers in the DMAS Central Office. They base their assessment largely on the specific program guidance they have provided the districts. However, program office guidance varies from vague to very specific and does not form a coherent basis for developing a national medical care strategy. We believe that identifying and prioritizing needs by eligibility categories is the most appropriate basis for developing a national medical care strategy. This would provide needs that are clearly ranked and can be used for construction planning and prioritization.

## Assessing Cost-Effective Ways To Meet Needs

It is extremely difficult for MEDIPP planners to assess the costs of current services or treatment patterns and identify more cost-effective treatment patterns. As discussed in chapter 2, VA managers have no ready, reliable means of identifying the costs of treating specific types of patients and illnesses, or of providing specific types of medical services,

such as cardiac surgery. Currently, VA captures cost and clinical workload data at the cost center level. Breaking these data down to the patient level—a necessary requirement for assessing resource usage by type of illness or service given—can only be done manually and with great effort. The DHCP, now being installed in VA hospitals, will capture some major categories of clinical data on a per patient basis. But DHCP is not designed to capture costs for the tests and procedures it records.

Without per patient clinical and cost data, MEDIPP planners would find it difficult, if not impossible, to analyze and explain the cost and workload trends shown in figures 4.2 (inpatient), 4.3 (outpatient), and 4.4 (hospital). In fiscal year 1982, for example, the total number of outpatients treated declined slightly, while outpatient costs (as measured by obligations) rose more than 14 percent. In fiscal year 1983, by contrast, outpatient visits rose by 3.9 percent, but obligations increased 6.5 percent. Similarly, in fiscal year 1983, obligations for inpatient care rose by about 10 percent, while the number of inpatients rose by only about 3 percent.

Planners should analyze such trends to identify possible explanatory factors, including the types of illnesses treated or modes of treatment. Is the severity of illness of the average patient increasing? Has a more effective, but more expensive, form of treatment been introduced for a specific illness? One should not necessarily expect VA medical care costs and workload to rise or decline in parallel fashion. But, knowing and understanding the relationship between workload and costs is as important for the planner as it is for the budget analyst.

Because VA financial management reports do not cite workload and costs by patient, illness, or clinical specialty, MEDIPP planners have an extremely difficult task in identifying and assessing cost-effective ways of meeting future veteran demand for health care. MEDIPP planners rely primarily on three data systems for assessing future workload and costs: AMIS data for projecting outpatient visits, the NPTF for projecting inpatient needs, and the RCS 10-141 cost reports for assessing costs for all activities. These data bases are used for such critical planning applications as outpatient and inpatient workload projections, cost estimation, and hospital bed sizing. Weaknesses in these systems were discussed in chapter 2.

MEDIPP planners use the RCS 10-141 cost data because they are the only data available. Also, the data are used in the budget process to develop

budget estimates for VA bed sections and for nursing home and outpatient care. Thus, using RCS 10-141 costs in MEDIPP is an attempt to strengthen MEDIPP's link to the budget. But, the RCS 10-141 costs are unreliable, frequently noncomparable among VA hospitals, and unable to provide costs on a per patient basis, the level most useful for health care financial management. (See chapter 2.) The success of VA's current pilot projects to develop methods of capturing per patient cost and clinical data is critical to all participants in all phases of VA health care financial management.

## Selecting Cost-Effective Ways To Meet Needs

Because VA only has aggregate data, which are just partially useful for assessing the cost-effectiveness of alternative means of delivering care, it has no assurance that MEDIPP planners have selected the most cost-effective means of providing care. For example, since VA does not currently know how much it costs to provide inpatient care for a veteran whose kidney stones are surgically removed, it cannot assess how much money, if any, would be saved by treating that veteran with new technology that permits, in many cases, dissolving the stones through nonsurgical outpatient treatment. Nevertheless, the Chief Medical Director has directed MEDIPP planners to assess ways of reducing costs by increasing the number of patients treated on an outpatient basis.

**Figure 4.2: Change in VA Inpatient Obligations and Number of Inpatients**

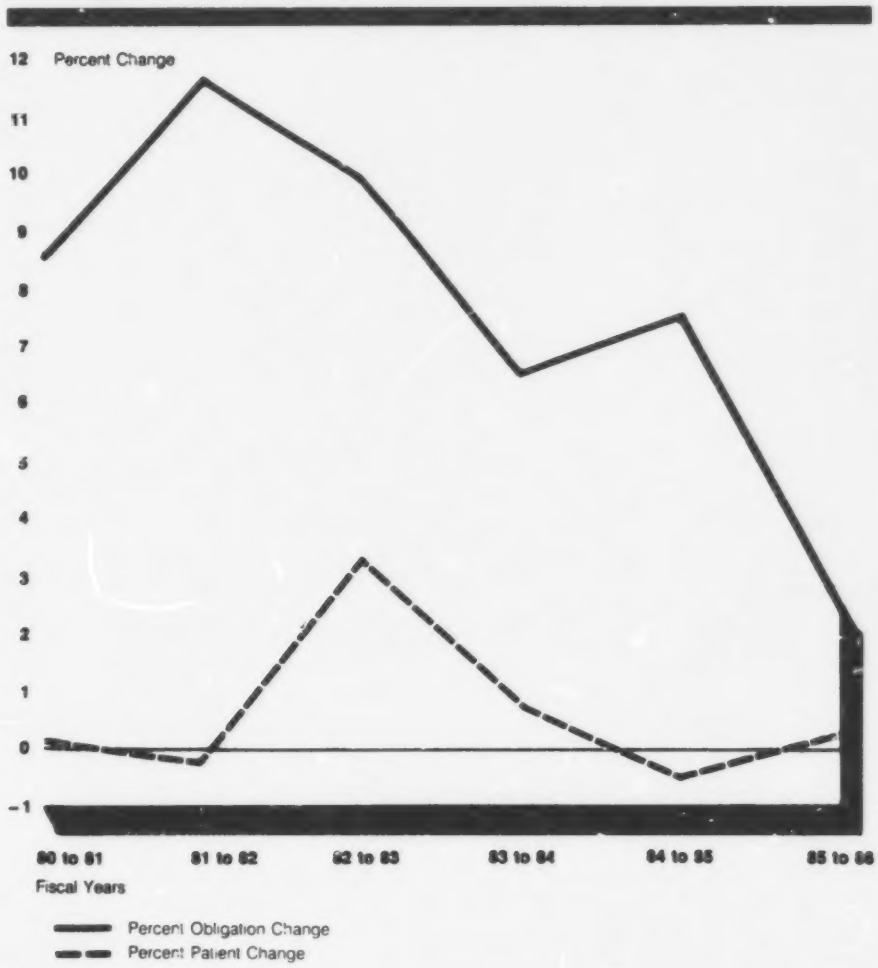


**Figure 4.3: Change in VA Outpatient Obligations and Number of Outpatients**

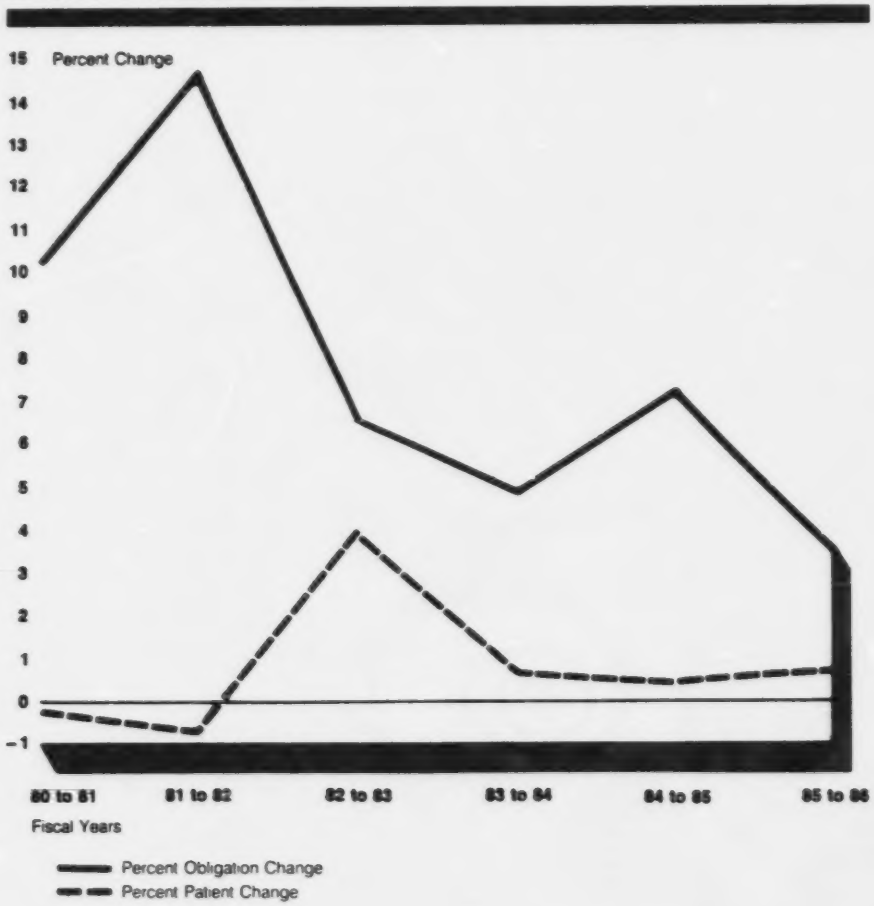
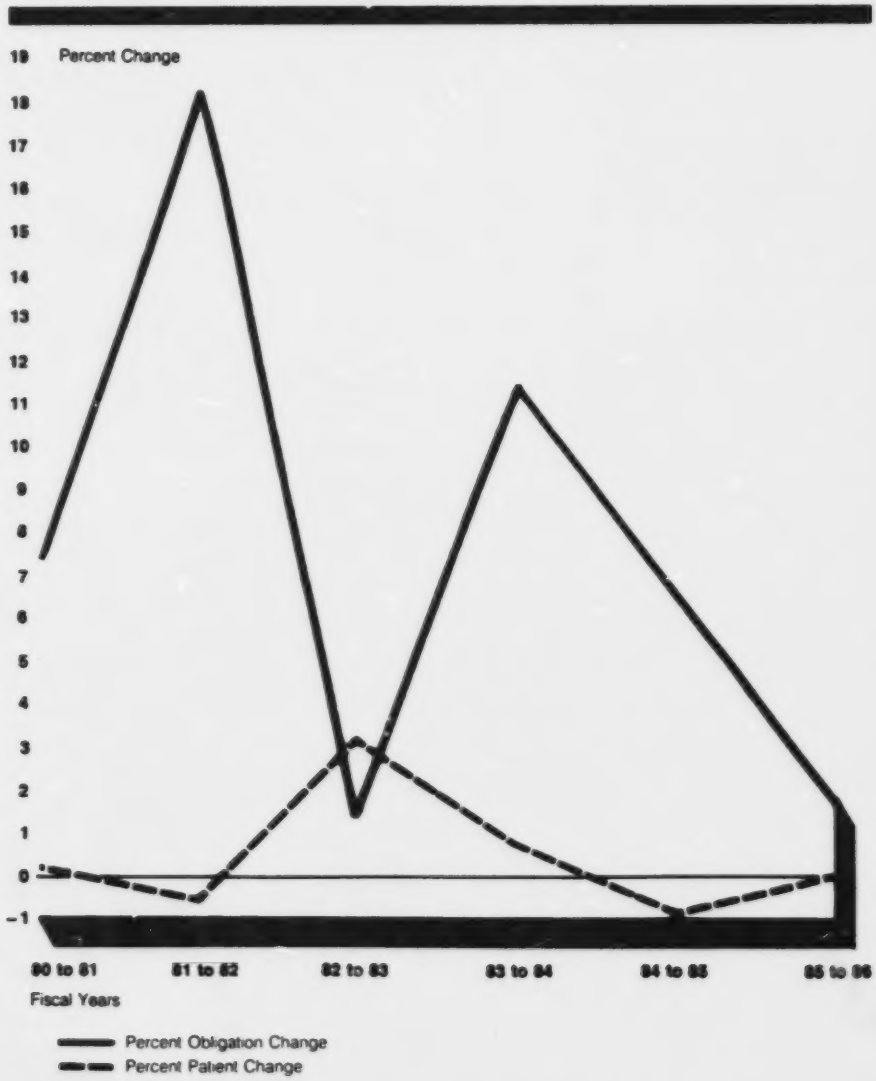


**Figure 4.4: Change in VA Hospital Care Obligations and Number of Patients**




## Integrating Planning Choices and the Budget

Although VA has tried several different methods of integrating MEDIPP initiatives into the budget, this has remained a consistent problem. (See table 4.2.) As previously mentioned, for 1985, the Chief Medical Director has introduced operational planning into MEDIPP, as a means of integrating MEDIPP not only with budget formulation but with hospital

budget allocation as well. The requirement that districts reprioritize their 1984 MEDIPP initiatives using three different budgetary ceilings serves as a means of getting districts to separate "wants" from "needs." This is an important and useful step in linking the results of planning to the other phases of the financial management cycle. Identifying more initiatives in MEDIPP plans than VA's budget proposals can accommodate has clearly been a major cause of VA's difficulty in linking MEDIPP to the budget.

**Table 4.2: Methods Tried by VA To Integrate the Results of MEDIPP Into the DM&S Budget Formulation Process**

| MEDIPP submission year | Basic method used |
|---|---|
| 1982 | The Program Analysis and Development Office submitted the aggregate results of the MEDIPP process to budget formulation along with additional program office initiatives. |
| 1983 | Two ad hoc task forces consisting of field and Central Office staff were formed to group actions into similar initiatives, rank initiatives according to criteria developed by the task forces, and submit results to budget formulation along with a separate list of program office initiatives. |
| 1984 | Program offices were primarily responsible for reviewing and selecting MEDIPP initiatives for inclusion in the budget. |

## Central Office Review Process Hinders MEDIPP's Linkage to Budgeting

MEDIPP initiatives have not been integrated into the budget for other reasons as well. Among these is the manner in which the DM&S Central Office has reviewed district MEDIPP plans. Each district identifies in its MEDIPP plan the actions that pertain to each of VA's 34 program areas. For example, the 1983 MEDIPP plans contained 2,761 district actions. The actions were consolidated by program area and distributed to the program offices for review. The program offices may add initiatives, which they believe are necessary to meet future medical care needs, that may have been excluded or given insufficient weight in the district plans. In 1984, 104 initiatives were considered for funding in the fiscal year 1986 budget. However, only 51 of these were identified in the district plans, while the others were put forward by the various program offices. Thus, district initiatives competed with Central Office initiatives for funding in the fiscal year 1986 budget. The reasons for this are unclear, although Central Office program officials we interviewed have said that they bring a necessary national perspective to MEDIPP review that the districts do not have. While this is no doubt true, it is also true that the district planners might be better able to address the national concerns of Central Office program officials if the MEDIPP guidance sent to the districts more clearly stated the national priorities and concerns that district planners should address.

## Conclusions

VA and DM&S have taken a major step forward by establishing a structured planning/programming process, MEDIPP, for projecting and assessing future veteran medical care needs. The very existence of the process places VA ahead of many other federal agencies in financial management. This process has provided the necessary multiyear framework for analyzing issues, helped to focus and improve communications within VA about the future of VA health care, provided a formal link between medical care needs and construction planning, fostered the development of new data bases for medical care planning, and promoted the assessment of weaknesses in existing data bases.

The process is relatively new and still evolving. Recent changes in MEDIPP, primarily the introduction of operational planning within budgetary ceilings, could prove to be major improvements by providing a basis for more careful assessment of needs and a better link between MEDIPP and the budget. However, VA has not yet set clear priorities for VA health care. The overall goal of MEDIPP continues to be identifying the resources necessary to meet the future health care needs of all eligible veterans expected to request care. We believe this is an unrealistic goal in the current budgetary environment. A more realistic goal would be to identify those actions that will permit VA to serve the maximum number of veterans in the order of their eligibility for care within the resources realistically expected to be available.

MEDIPP guidance from the Chief Medical Director and program offices is inadequate for clearly identifying the major medical priorities in VA and the issues that MEDIPP planners should address within these priorities. Consequently, MEDIPP plans represent divergent definitions of VA's health care priorities, and the plans have proven to be difficult to integrate into a single, national medical care strategy. The absence of such a strategy has had an adverse impact on construction planning and prioritization. (See chapter 5.)

The methods used for projecting both veteran demand for care and the types of care they will need are subject to question. Projections of overall demand do not necessarily take into account factors that may affect the usefulness of past utilization rates in accurately projecting future ones. Examples include the movement of veterans to sunbelt states as they get older or increased demand due to opening a new facility where previously none has existed. The projections of types of care are based on aggregate workload projections, rather than on an analysis of actual past care provided to veterans in various age groups

or categories of eligibility. Discrete eligibility categories are not routinely considered in the projection of future demand and workload, although they are critically important in identifying who has access to care when resources are limited.

Finally, VA does not have the per patient or per illness clinical and cost information that would permit it to properly assess the most cost-effective means of delivering quality care for the medical care needs and priorities MEDIPP has identified. The workload and cost information currently used in MEDIPP is often inaccurate, currently incomplete, and does not provide data which are useful for analyzing the current use of resources and assessing ways of improving program efficiency.

## Recommendations

We support VA's efforts to improve its evolving MEDIPP process. Specifically, we believe the process could be made more useful to both medical care planners, DM&S decisionmakers, budget officers, and the Congress if the Administrator of VA would

- develop a clearly ranked set of national medical care goals and objectives to guide both MEDIPP planners and those who prioritize medical care construction projects;
- establish a planning framework based on a projection of the types of illnesses for which future veterans are expected to request care, and an analysis of the resources necessary to provide that care (such as the "casemix" approach);
- systematically collect and use veteran eligibility data (categories of veterans as defined by their access to VA medical care) in planning to meet the needs of the greatest number of veterans authorized to receive VA medical care in the order of their priority for receiving care; and
- develop a systematic mechanism to link the results of MEDIPP with the budget process (the new "operational planning" approach holds promise as that mechanism).

In addition, we support VA's efforts to continue

- working to improve the reliability and usefulness of the data bases with planning applications, giving priority to current efforts to develop a system of capturing clinical workload and cost data on a per patient, per illness, and clinic stop basis; and
- the initiative begun with the 1985 MEDIPP cycle to use one or more dollar ceilings to guide MEDIPP planners in their assessment of alternative medical care strategies.

With these improvements, MEDIPP could become an effective medical care planning process that clearly identifies DMAS's medical care strategy and provides VA and the Congress with the information they need for both policymaking and budget review.

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# Major Construction

The Senate Committee on Veterans' Affairs requested that we examine how VA sets priorities for proposed construction projects. Since this is one of the final steps in construction planning, we also had to examine how VA's construction planning process works. We were also asked to determine if VA considered the needs of veterans with service-connected disabilities in its construction process.

Based on our review of VA's medical care planning process (MEDIPP), its new prioritization methodology, and the financial management data weaknesses that affect construction, our major findings are summarized as follows:

- The lack of effective integration between medical care planning and the construction process results largely from MEDIPP not producing a set of clearly ranked national medical care priorities for use in construction planning and priority setting.
- Planning, prioritizing, and budgeting for major construction begin with the MEDIPP-identified medical care priorities and construction projects. Since MEDIPP does not systematically distinguish between the medical care needs of service-connected and nonservice-connected veterans, neither does major construction planning, prioritizing, and budgeting.
- No clear, national construction strategy or reliable supporting data exist to guide construction planning, prioritizing, design, and construction. Projects tend to be custom designed, with little reliance on prior experience to revise and improve both the process and the data on which it relies.

At the same time we conducted our study, Booz, Allen & Hamilton (a private consulting firm) conducted a 1-year study of all phases of VA's construction process. That study, which was completed in April 1985 and with whose major conclusions VA concurs, found that

- there is a lack of effective integration between the medical care planning process and the major construction process;
- the absence of a set of consistent, clear, and up-to-date design, staffing, and workload standards to guide the initial development of construction projects, compounded by the lack of clear accountability for time performance during this stage, lengthens the time it takes to plan and build a major construction project; and
- the duplication and fragmentation of key construction planning and design responsibilities, combined with excessive coordination and shared decisionmaking responsibilities, are major contributors to delays and inefficiencies in construction planning and design.

Booz, Allen & Hamilton found, and our interviews confirm, that the large number and variety of VA offices involved in the construction process and the lack of essential information to begin a project are important reasons why it takes, on average, 8 years to plan, design, and build a major construction project in VA. Over the years, the offices involved in the construction process have disagreed on the criteria, standards, and design elements used to plan, design, and build such projects. The VA construction process lacks clarity in its responsibility and functional assignments as well as effective procedures for decisionmaking. Compounding these problems is the lack of specific, consistently enforced milestones after which design elements cannot be questioned.

In this chapter, we discuss the purpose of the major construction process and the role of that process in an integrated financial management system for VA. After a review of how the process currently works, we summarize the varied factors that affect the process and the Congress' many efforts to improve the process.

As in preceding chapters, we assess the VA's major construction process by using a model. Our assessment is based on (1) our restatement of the mission and goal of the process, (2) the model of a sound construction process presented in this chapter, and (3) the criteria for an effective financial management process, as stated in Managing the Cost of Government. (See chapter 1.) Appendix I of this report also lists this criteria.

## Purpose of the Major Construction Process

VA, with the assistance of Booz, Allen & Hamilton, defined the mission and goal of the construction process as follows:

- Construct facilities in which high quality medical care can be provided on a timely basis within the law to all authorized veterans. [Emphasis added.][1]
- Maintain organizational structures and procedures that facilitate and monitor all phases of the construction process, ensuring that the facilities constructed meet identified needs and are consistent with the mission statement.

[1]As mentioned in chapter 4, because VA sees its mission as serving the medical care needs of all veterans, it does not consider separately the needs of service-connected veterans in establishing medical care or construction needs and priorities. The needs of only one group of eligible veterans are considered separately in MEDIPP—veterans 65 and older. VA considers it important to highlight the needs of this group because they are likely to be the primary source of increased demand for VA health care in the next 10 to 15 years.

In our view, VA's statement of the mission and goal of its construction process is too general to serve as a basis for assessing the effectiveness and efficiency of the process in planning, prioritizing, designing, and constructing VA health care projects. For example, although all major participants agree that the current process is lengthy, cumbersome, and in need of improvement, it can be argued that the process nevertheless meets VA's stated goal—to ensure that facilities constructed meet identified needs and are consistent with the mission statement. But, as prior studies have shown—and the Booz, Allen & Hamilton study confirms—that does not necessarily mean the process is the most timely or cost-effective one possible.

We have restated the mission and goal to reflect (1) the importance of reliable, accurate management information in the process and (2) the need to link the results of MEDIPP to the construction process in a more systematic way:

- To plan, design, and construct facilities that will maximize VA's ability to provide, on a timely basis, high quality medical care to eligible veterans, based on the prioritized medical care needs of those veterans.
- To design, establish, and maintain organizational structures, processes, and management information systems that can be used to plan, prioritize, design, and construct high quality VA medical care facilities. These facilities will support the medical care needs of veterans, as identified and prioritized by the MEDIPP process, in the most timely and cost-effective manner possible within the resources available.

As part of an integrated financial management system, an effective construction process must

- establish lines of accountability and responsibility with a clear process for carrying out construction activities;
- enable management to make resource allocation decisions within a unified analytical framework that links priority medical and functional needs to construction priorities and design;
- provide standards that define desired levels of performance specifically for the construction planning, programming, and budget execution phases;
- combine program, organizational, and project planning for the maximum effective use of resources available;
- link all phases of the major construction process; and
- allow management to assess how effectively resources have been used to meet identified and ranked goals and medical needs.

## How the Construction Process Now Works

The VA construction process is a highly participative one and revolves around three organizations: the Office of the Administrator; the Department of Medicine and Surgery (DM&S); and the Office of the Associate Deputy Administrator for Logistics, particularly its Office of Construction. The Office of the Administrator oversees the construction process, approves long-range construction plans, and advises DM&S and the Office of Construction on fiscal matters. DM&S is primarily concerned with defining the medical care needs of veterans and the resulting requirements for facilities. The Deputy for Logistics' role is to develop and complete construction projects that meet medical care construction needs.

The present construction process begins at the VA medical centers, with the preparation of a 5-year facility plan for each hospital. This plan is the medical center's long-range strategy for meeting its new construction needs, renovations, and repairs. There are two types of construction needs: MEDIPP-identified and medical center-identified. MEDIPP-identified construction needs are based on clinical needs identified in MEDIPP, and should be consistent with the specific mission and program requirements established for the facility in MEDIPP.[2] Medical center-identified construction needs are based on an assessment of the physical condition of existing facilities regarding fire and safety hazards, electrical systems, heating and cooling areas, and other factors. Construction needs in these areas are identified by each medical center's facility engineer. The Medical District Director reviews the plan for each facility within the district to ensure congruence with the overall medical care mission of both the district and VA health care as a whole. Once the Medical District Director approves the plans, they are forwarded to the regional office for review and then forwarded to DM&S.

The 5-year facility plans are reviewed by technical and program specialists in DM&S and the Offices of Construction and Procurement and Supply within the Office of the Deputy Associate Administrator for Logistics. Construction reviews and comments on the plans, while Procurement and Supply reviews, comments on, and concurs with the plans. Once DM&S has reached concurrence on the plans, the approved plans are returned to the medical centers for implementation. More detailed estimates of the work are done, and cost estimates for inclusion in the budget are obtained.

[2]MEDIPP was initiated by DM&S in 1981 as a planning approach designed to identify the medical care (clinical) needs of veterans. We believe that one of MEDIPP's objectives should be to specify and prioritize construction projects needed to support medical program requirements. Chapter 4 describes and assesses the MEDIPP process and also presents a model for this process.

DM&S annually conducts a needs assessment for all medical centers requesting major construction projects.[3] This process begins with the projects identified in the 5-year facility plans. These are the clinically-based projects identified by MEDIPP and the physical plant deficiencies identified by the facility engineers. VA develops an estimated cost for each project by using various workload standards, refines the scope of the project as defined in the needs assessment, and submits the costs in its major construction budget to the Congress. Once the Congress has funded the project, construction begins.

Figure 5.1 is a flowchart of VA's current construction process. It is followed by a description of the highlights of the activities within the various functions of this process.[4]

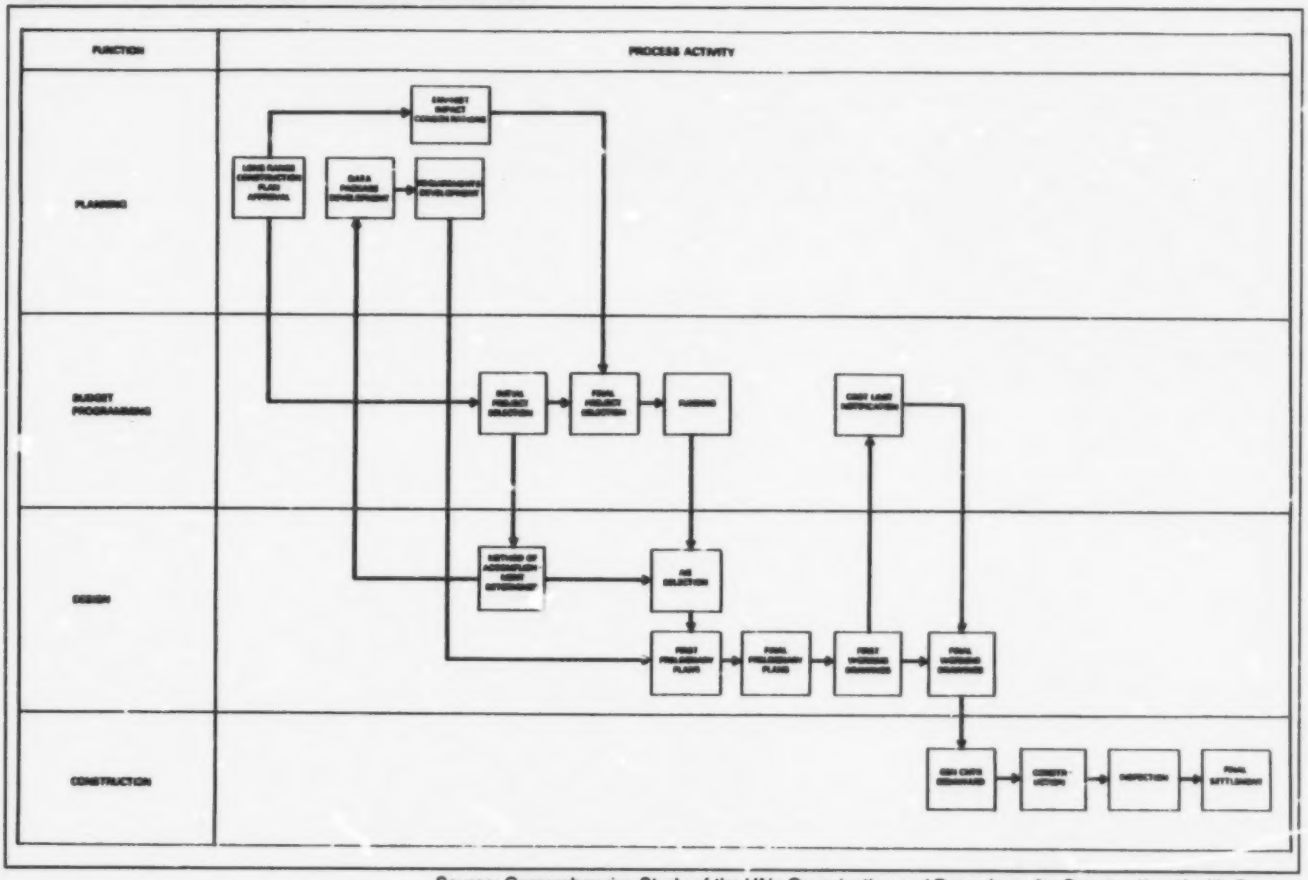
The initial steps in VA's construction process are very dynamic in nature. Projects proposed in a medical center's 5-year plan are continually being combined or cancelled or are proceeding to the next stage in the process. As such, it is difficult to develop an average construction time period from the initial inclusion of a project in a 5-year plan to a completed structure. However, once projects are selected during the planning phase for initial funding, it becomes easier to develop an estimated time period for the construction process. Based on the VA system used to track construction projects, the time period from initial funding to completed construction averages almost 8 years.[5]

[3]There are four types of construction projects: (1) major—projects with an estimated cost of $2 million or more; (2) minor—projects with an estimated cost of between $400,000 and $2 million; (3) minor miscellaneous—projects for which the total project cost does not exceed $500,000; and (4) nonrecurring maintenance—projects for nonrecurring maintenance work or repair, replacement of or additions to building service equipment, and/or minor improvements where the minor improvement portion of the project is between $15,000 and $100,000. Our study covers only VA's construction process for major projects.

[4]A more detailed description and flowcharts of the major construction process can be found in Volume 2 of this report.

[5]Initial funding (Advance Planning Fund) usually occurs between the inclusion of a proposed project in a medical center's 5-year plan and the development of the needs assessment. This funding allows VA to refine the scope of a project and prepare reliable cost estimates for review by OMB and the Congress.

**Figure 5.1: VA's Current Major Construction Process**




Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase I Submission—Process Documentation, Booz, Allen & Hamilton, September 1984.

## VA Construction Process: Functions and Activities

The following description shows only the general progression of the Health Care Facility construction process from function to function and activity to activity within each function. It is recognized that certain planning, budget programming, and design activities are carried out simultaneously for some (major and minor) projects.

- During the planning function,

1. the long range construction plan is approved,
2. any environmental/historical impacts are considered,

3. the data package is developed, and
4. the requirements are developed.

- During the budget programming function,

1. the initial project is selected,
2. initial funding is requested,
3. the final project is selected, and
4. the cost limited notification is developed.

- During the design function,

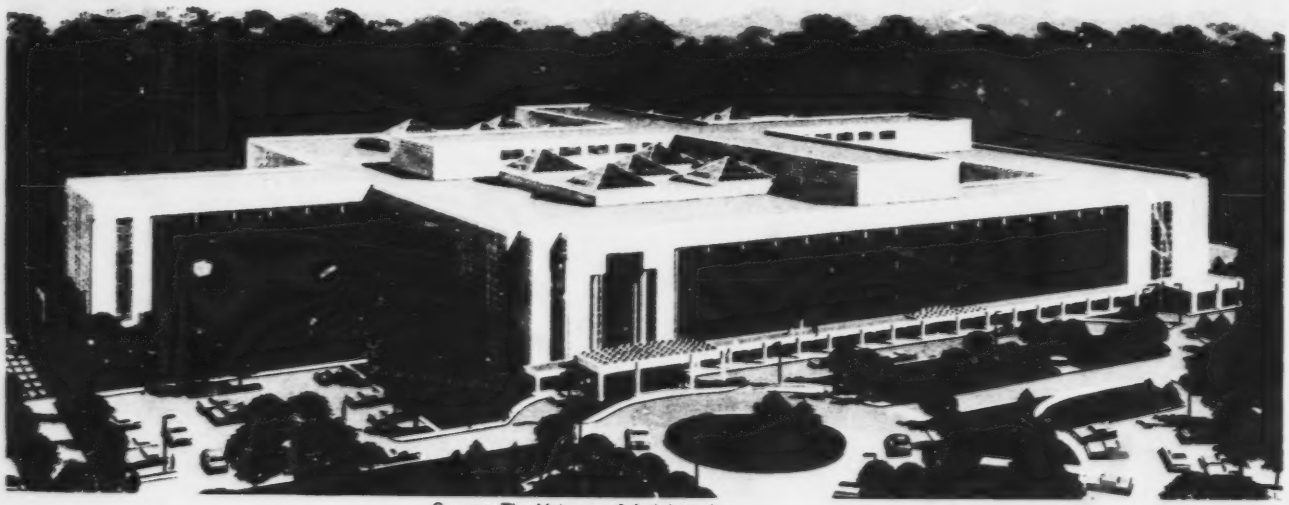
1. the design concept is developed,
2. the method of accomplishment is determined,
3. the architectural/engineering firm is selected,
4. the first preliminary plans are drawn up,
5. the working drawings option is awarded, and
6. the first, second, and final working drawings are developed.

- During the construction function,

1. the general contract is awarded,
2. construction begins,
3. the project is inspected, and
4. final settlement takes place.

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase I Submission—Process Documentation, Booz, Allen & Hamilton, September 1984.

Figure 5.2: 845-Bed Replacement Hospital—Minneapolis, Minnesota



Source: The Veterans Administration.

## Importance of a National Construction Strategy

The construction program should develop a national strategy for meeting both MEDIPP-identified and medical center-identified construction needs.[6] The national construction strategy should address the types of construction needed, the financial resources required for that construction, and the time frame in which projects must be built to meet medical program needs. To ensure its effective implementation, the strategy should also identify the criteria to be used in prioritizing projects, the data needed to support each step of the strategy, and the offices primarily responsible for implementing each major step.

Combined with the results of a sound medical care planning process, the national construction strategy can form the basis for appropriately allocating limited resources to implement new medical program initiatives,

[6]Since both types of needs affect VA's ability to provide medical care to veterans, we refer to them collectively as medical program construction needs.

meet future workload requirements, address current deficiencies, and maintain present operations at existing facilities.

## Better Data Required

Currently, VA does not have a clear, national construction strategy. This is largely due to two factors: the lack of a clear, national medical care strategy resulting from MEDIPP and the lack of a construction data base to support such a strategy. As discussed previously (see chapter 4), MEDIPP does not produce a clear set of national medical care priorities or, therefore, a list of the construction projects to support those priorities. This greatly complicates the development of a national construction strategy for there are no clear medical care criteria for evaluating specific projects.

Moreover, since construction projects have historically been planned on a project-by-project basis, there are no clear construction design, function, and space standards to use in evaluating specific projects and proposals. One contributing factor is a perception that each construction project is unique. To some extent this observation may be valid, based upon the variation among VA medical centers in facility mission, size, type of workload, and geographic and demographic factors. However, it has led to a protracted planning process through which each particular facility and project is customized, with limited reliance on prior experience as a basis for improving future performance.

Of course, there are unique problems and features in each construction project that require customized solutions. But, the basic functions of similar facilities—for example, nursing homes or outpatient clinics—should not vary greatly from facility to facility. However, VA has not defined the basic functions and the range of medical services that should be provided in any particular type of VA facility, such as primary, secondary, and tertiary care hospitals. Although a basic definition of each type of hospital has been proposed, they have not yet been approved.[7]

A list of the basic services to be offered at each type of VA facility would be useful for both medical care planning and construction planning and

[7]The Medical District 12 Planning Board adopted the following definitions for levels of care: level I facilities (primary-general ambulatory care) provide primary diagnosis and treatment services, staffed by personnel capable of providing relatively simple but essential patient services; level II facilities (secondary) provide all level I services as well as common and uncomplicated medical, surgical, and psychiatric inpatient treatment; and level III facilities (tertiary) provide all level I and level II services as well as treating complex cases, relatively rare diseases, and emergencies for all categories of critically ill people.

design. The clinical functions of the facility being designed and the workload it is expected to support largely determine the equipment, space, and other characteristics of the project. Moreover, certain basic design elements should be standard throughout VA, as they are in private hospital chains. A patient room in a VA hospital or nursing home in Minneapolis, for example, should be basically the same as a patient room in a VA hospital or nursing home in Houston.

While VA has developed standards and criteria for different functions in a hospital, such as ambulatory care and surgical service, these planning criteria are not flexible or up to date. The factors that were considered in developing these standards and criteria are not delineated. Thus, variables unique to a specific project or changes subsequent to the development of the standards (for example, changes in medical technology, operating modalities, or the standards of the Joint Commission on the Accreditation of Hospitals) cannot readily be incorporated into existing standards and criteria. Because of the general perception that the standards and criteria are not flexible or realistic, they are often ignored or are not helpful in planning a construction project.

VA has also developed staffing guidelines for some specific functions within its medical facilities, such as surgical suites. But, these guidelines are not part of an overall, phased strategy for developing comprehensive, compatible function, space, staff, and design criteria and standards for use in construction planning and design. We agree with Booz, Allen & Hamilton's conclusion that such criteria and standards, regularly reviewed and updated, are essential if VA is to minimize both the time and cost of planning, designing, and constructing quality health care facilities.

## Efforts To Improve the Construction Process

One overriding consideration in any effort to improve VA's construction process is that its management is complicated by the relationships of the various VA components involved and by the fluctuating influences of both internal and external factors. The Congress, the President, the Office of Management and Budget, GAO, and others have taken actions or conducted studies on how to improve the construction process.[8] While much has been accomplished in the more than 15 years VA has searched for ways to improve its process, improvements are still needed. The following discussion highlights several environmental factors, identified by

[8]Appendix VI contains an annotated list of major studies by VA, GAO, and the President's Private Sector Survey on Cost Control, better known as the Grace Commission.

us and by Booz, Allen & Hamilton, that affect the VA construction process. While we are fully aware of their importance to the construction process, our analysis of that process focuses on the information and linkages necessary to make informed, rational judgments and decisions about VA construction projects and priorities.

## Environmental Factors That Affect VA's Major Construction Process

External Factors

(1) Changing demand for medical care:

- Different types of facilities have been and will be required to meet current and projected veterans' needs. For example, the aging veteran population will require more nursing home units.
- Migration of veterans from northern to sunbelt states has shifted utilization of facilities and emphasized the need for more facilities in these areas.
- During the past 10 years, the number and cost of health care facilities have increased significantly. According to MEDIPP data, this trend should continue through the 1990s.
- Planning assumptions used to predict future veteran demand for VA health care are the fundamental basis for predicting future construction needs. The number of beds needed will vary significantly depending upon whether one assumes the percentage of eligible veterans requesting care will remain stable (the assumption used in the Congressional Budget Office's study, VA Health Care: Planning for Future Years) or that demand is artificially constrained by a lack of available facilities (the assumption followed in VA's study, Caring for the Older Veteran).

(2) Resource availability

- One trend in the federal government is to contain costs by changing eligibility requirements or by reducing the scope of benefits to veterans.
- Concerned that requests for initial funding in one year lead to dramatically higher requests for final funding the following year, OMB has limited VA's budget requests for replacement and modernization projects.
- Availability of personnel resources and funds has varied from year to year.

- VA facilities range in age from buildings constructed in the last century to those completed last year. The age of existing buildings necessitates frequent alterations and improvements in order to maintain high quality medical care.

(3) Rapidly changing technology

- Given an average construction period of 8 years, VA must ensure that the construction process can adapt to changing medical, design, office management, and building technologies so that a facility is not considered obsolete when opened.
- Since VA operates the largest education and training program in the nation, it strives to maintain a state-of-the-art environment.

(4) Other

- There is a need to balance the divergent views of all participants into a system that provides quality medical care to eligible veterans and is as responsive to their needs as budgetary constraints permit.
- VA must operate within the federal environment with all of its attendant requirements and mechanisms for obtaining resources.

Internal Factors

(1) Project complexity

- Limited guidelines on design requirements result in the customization of projects. To the extent that a project is considered complex, a lengthening of the process results.

(2) Decision-making responsibilities

- The construction process requires that consensus be achieved among participants on key decisions.

(3) Staff

- If key participants (for example, new hospital director or new Chief Medical Director) change, they may direct that previous decisions be modified.
- Highly skilled staff are required to implement the construction process.

(4) Other

- The VA construction process has a highly structured, formal organization in which each organizational element is differentiated by task, level, or project type.

## Congressional Actions

Since 1978, the Congress and several of its committees have taken action, or directed VA to take action, to improve the major construction process. These actions have primarily been directed at improving the information used in the construction process and reducing the time necessary to plan, design, and build health care facilities.

In 1978, the Congress established the Advance Planning Fund as a means of providing VA with the flexibility necessary for the advanced development of future construction projects. Through the Fund, VA has developed a more precise project scope and consequently more reliable cost estimates which are then used by OMB and the Congress in their reviews of VA's construction programs and funding requests.

The Congress has enacted several pieces of legislation to improve the VA construction process. Under 38 U.S.C. 5007(a) (Public Law 96-22, June 13, 1979), VA is required to submit to the House and Senate Committees on Veterans' Affairs an annual report containing a listing, in priority order, of the medical centers it believes are in need of construction, replacement, or modernization. VA submitted the first list, known as the Five Year Medical Facility Construction Needs Assessment, in August 1979. Under 38 U.S.C. 5004(a), the House and Senate Committees on Veterans' Affairs must first approve, by resolution, any construction project with an estimated cost of $2 million or more before an appropriation may be made.

Numerous congressional reports have addressed the VA construction process. A 1981 House-Senate conference report (H. Rep. No. 97-222) on Public Law 97-101 directed VA to delegate the responsibility for the construction of three nursing home care units to the hospital directors at the medical centers where these facilities were to be built. Among the goals and objectives for delegation were to improve the efficiency of the

construction process and to increase the degree of user involvement with the final product.[9]

Senate Appropriations Committee Report No. 98-506 (on Public Law 98-371), dated June 6, 1984, directed VA to prepare a methodology for prioritizing its major construction projects in a single list. The methodology is discussed later in this chapter.

In addition to the annual congressional hearings on VA's budget request for the construction program, hearings are occasionally convened that focus on a specific aspect of the construction process. For example, in April 1980, hearings were held to examine issues involved in the planned construction of a replacement medical center in Minneapolis, Minnesota. Among the witnesses were the VA, the American Legion, the Veterans of Foreign Wars, and the Council of Community Hospitals.

## VA's Improvement Efforts

Since 1970, VA has conducted a number of studies of its construction process.[10]

These studies have focused on three recurring problems: the "proper" division of responsibilities between DMAS and the Office of Construction, the need to develop consistent criteria for prioritizing projects, and ways of improving the data used to both assess construction projects and determine their scope and design. In its latest effort, VA awarded a contract to Booz, Allen & Hamilton in March 1984 to conduct a study of VA's construction process and recommend alternatives for improvements. This study was divided into three phases, each with an accompanying report: a description of the health care facility construction process in VA, an assessment of that process, and recommendations for improving the process.[11]

[9]At VA's request, Booz, Allen & Hamilton prepared a study on the delegated nursing home units. See Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Modification to Assess Delegation of Authority to Hospital Directors for Administration of Nursing Home Care Unit Construction Project at the VAMCs [VA medical centers] in Ann Arbor, MI, Fresno, CA, and Tampa, FL, April 1985. Appendix V contains highlights of this study.

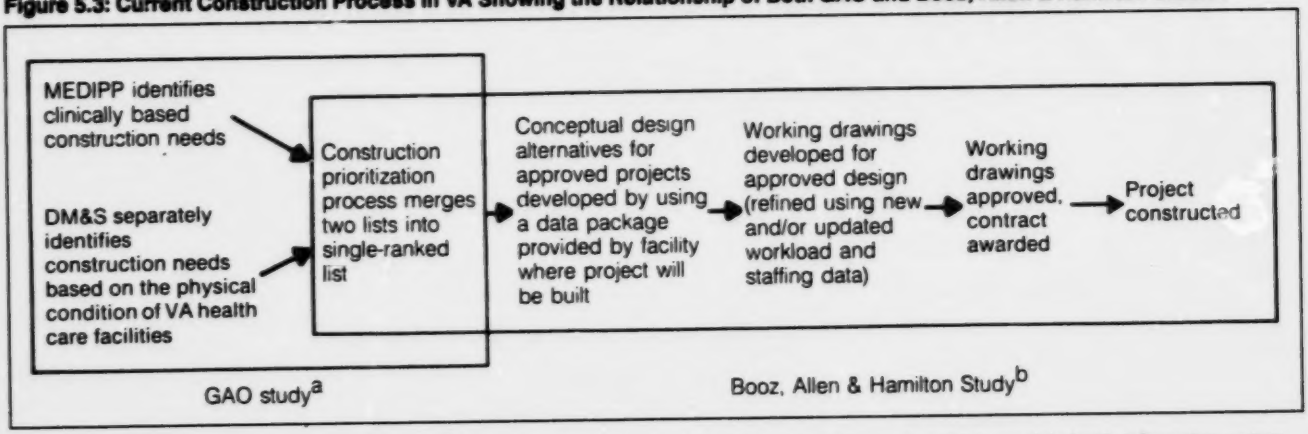
[10]A list of these studies can be found in appendix VI.

[11]See Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase I Submission—Process Documentation, September 1984; Phase II Submission—Data Evaluation and Analysis, January 1985; and Phase III Submission—Proposals and Recommendations, April 1985.

Booz, Allen & Hamilton identified the lack of effective integration between the health care program and the construction program as the major problem in the construction process, a finding with which VA concurs. Booz, Allen & Hamilton believes that current VA procedures and organizational structures which stress the independence of the medical care and construction programs cause the problem.

The Booz, Allen & Hamilton study was limited to the construction process and did not examine VA's medical care planning process, MEDIPP. As discussed previously, we did not attempt to duplicate the Booz, Allen & Hamilton study. Instead, by examining the study's workpapers and interviewing VA officials, we determined that we could rely on the results of the firm's work in preparing this report. Figure 5.3 depicts the relationship between our study and that of Booz, Allen & Hamilton.

**Figure 5.3: Current Construction Process in VA Showing the Relationship of Both GAO and Booz, Allen & Hamilton Studies**


MEDIPP identifies clinically based construction needs
DM&S separately identifies construction needs based on the physical condition of VA health care facilities
Construction prioritization process merges two lists into single-ranked list
Conceptual design alternatives for approved projects developed by using a data package provided by facility where project will be built
Working drawings developed for approved design (refined using new and/or updated workload and staffing data)
Working drawings approved, contract awarded
Project constructed
GAO study[a]
Booz, Allen & Hamilton Study[b]

[a]While we did not examine data package development in detail, we did identify information system problems that affect data package development by facilities

[b]Booz, Allen & Hamilton's study was completed prior to VA's completion of its new prioritization methodology, which we have reviewed

## Assessing the Construction Process With a Model

In its study, Booz, Allen & Hamilton presents an ideal planning and budget programming model that it developed to evaluate VA's construction planning process. We believe the model not only incorporates the construction process objectives already discussed, but also serves to emphasize the interdependency among the phases of the construction process. We slightly modified and expanded the model to highlight the concepts in our report Managing the Cost of Government (GAO/AFMD-85-

35 and 35-A, February 1985). Our revised model for VA construction is illustrated in figure 5.4.

In the model, the VA construction process is comprised of five phases: construction planning, construction programming, budget formulation, budget execution, and audit/evaluation. Information produced in each phase serves to link and fill the gaps between the other phases of the process. Each phase is an essential building block in a sound medical construction process designed to develop medical facility priorities and to ensure that adequate resources (information and funding) are generated for the purposes of construction planning/ programming, budgeting, budget execution, and audit/ evaluation.

It is important that the phases of the process link, as in the following examples:

- MEDIPP should link to construction planning because

  (1) it is the most important link in the construction process since the medical program sets goals and directions for construction projects and

  (2) linkage is needed to transmit to the construction program information on the goals, objectives, and services of the medical program, the relative priority of those medical services, and any construction that the medical program needs to provide those services.

- Construction planning should link to construction programming because

  (1) linkage provides initial financial resources for construction project planning;

  (2) it ensures that VA can achieve its medical program goals by supporting construction program priorities; and

  (3) it shifts the focus from the overall strategic plan of medical and construction programs to the level of individual project plans.

- Construction programming should link to budget formulation because it

  (1) ensures that construction priorities are used as a basis for placing projects in the budget;

  (2) supports the development of individual projects;

(3) facilitates the transfer of planning information that is accumulated in the construction planning and programming phases to the planners in charge of a specific project. Planning information to be transferred includes the need the project must fill, the inventory of existing physical structures at the medical center, planning criteria guidance, and functional areas (for example, parking areas, kitchen, laundry) to be included; and

(4) provides the informational basis for initial budget estimates in budget formulation.

- Budget formulation should link to budget execution because it

(1) provides final funding for individual projects;

(2) ensures that funds are spent for projects that were selected during the budget formulation process; and

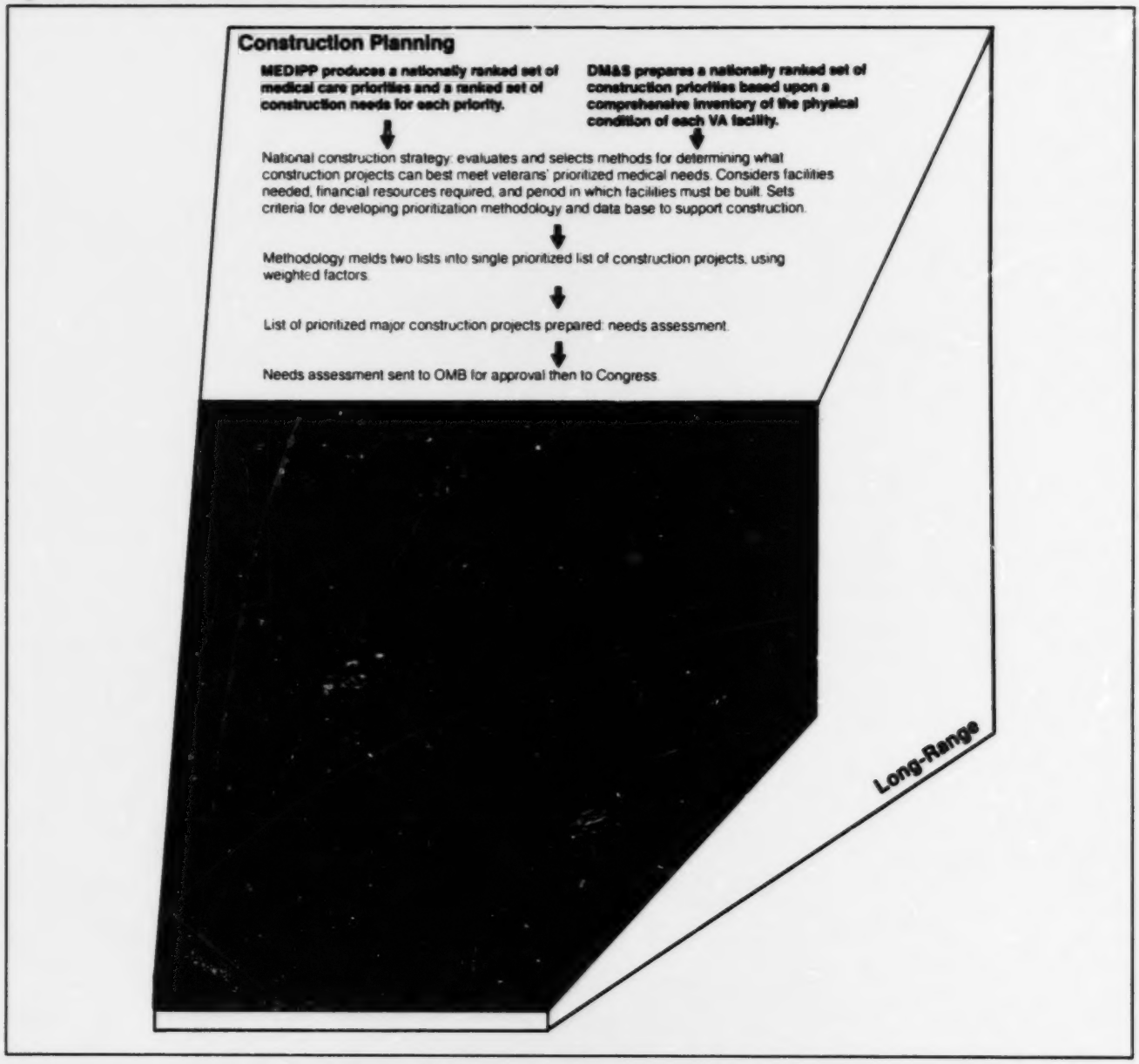
(3) ensures that projects selected for inclusion in the budget actually are developed during the budget execution process.

- Audit/evaluation should link to construction planning, programming, budget formulation, and budget execution phases because it

(1) allows management to compare past performance data to current and planned performance data in the course of planning, programming, and budgeting and

(2) permits management to assess its effectiveness in achieving intended objectives of its policies, organizations, programs, projects, and activities. This assessment should be used as a basis for future planning, programming, and budgeting decisions, particularly in setting more realistic, achievable, and output-oriented expectations for policies and programs.

**Figure 5.4: A Model VA Construction Process**


Construction Planning
MEDIPP produces a nationally ranked set of medical care priorities and a ranked set of construction needs for each priority.
DM&S prepares a nationally ranked set of construction priorities based upon a comprehensive inventory of the physical condition of each VA facility.
National construction strategy: evaluates and selects methods for determining what construction projects can best meet veterans' prioritized medical needs. Considers facilities needed, financial resources required, and period in which facilities must be built. Sets criteria for developing prioritization methodology and data base to support construction.
Methodology melds two lists into single prioritized list of construction projects, using weighted factors.
List of prioritized major construction projects prepared: needs assessment.
Needs assessment sent to OMB for approval then to Congress.
Long-Range

Note: Model shows the typical progression of the construction process from phase to phase and activity to activity within each phase. It should be recognized that some activities may occur within the same or different phases simultaneously.

In the model, the focus of decisionmaking narrows as the construction process proceeds from initially identifying construction needs through prioritizing, designing, and constructing specific projects. At each stage of the process, the data needed become more detailed and precise, and the participants change. MEDIPP planners are responsible, for example, for identifying projects that serve DM&S's goals and objectives. But, architects and engineers in the Office of Construction are primarily responsible for developing the detailed architectural solutions to these needs, using reliable clinical and staffing data supplied by DM&S. One of the primary problems in VA's construction process, as identified by Booz, Allen & Hamilton, is the absence of clearly delineated responsibilities and accountability for specific aspects of the construction process.

## Construction Planning Phase

Two ranked lists of needs form the basis of the construction planning phase. As shown in the MEDIPP model in chapter 4, MEDIPP, by establishing the goals and objectives of the medical program, should determine (1) the medical services to be provided, (2) the priority of these services, (3) the deficiencies between current medical services provided and projected medical services to be provided, and thus (4) a ranked list of construction projects needed to provide the medical services identified. As already discussed, MEDIPP does not currently do this well.

The deficiencies identified by MEDIPP are primarily clinical, such as an insufficient number of surgical suites or inadequate space and equipment for the current and projected radiology workload. A second construction list focuses on deficiencies in the physical condition of VA's medical care facilities. Each medical center is required to delineate proposed and planned projects that will correct all existing and projected nonmedical, physical plant deficiencies at its facility. This list must also reflect the goals established by MEDIPP. The Facility Planning Service in DM&S, with the assistance of the Office of Construction, then merges the two lists of projects—clinical needs and physical plant deficiencies—into a single prioritized list of projects. This list is published as the Five Year Medical Facility Construction Needs Assessment. It contains a list of the 10 medical centers most in need of construction, more popularly known as the "list of ten."

If a project is based primarily on medical care needs rather than on deficiencies in physical plant, it may be necessary to conduct a site study to determine the ability of current facilities (for example, boiler, laundry, kitchen, electrical system) to support planned workload increases or

changes in the type of medical services offered (for example, the addition of a radiology clinic for cancer treatment). Since VA does not have an up-to-date, comprehensive inventory of the physical condition of its facilities, the development of conceptual designs may be delayed while the data are obtained.

During this phase, planners should begin to refine the scope of proposed projects. Relying upon its data base planning information and the refinements to proposed projects, VA should be able to more precisely determine the scope of work that will be required to meet medical program construction needs. Projects should be designed to provide specific types of medical care services for veterans, as identified and prioritized in MEDIPP. The range of medical services that a project is designed to provide is itself a function of the types of illnesses for which VA expects veterans to request care in the future. Designing facilities to provide this care requires reliable, accurate data on the current clinical resources used to provide similar care today, which are then adjusted for any changes in patterns of care expected by the time the facility is complete. These data can be used, in turn, to refine and update staff and space standards used in developing conceptual alternatives for specific construction projects.

Data Needed

A data base comprised of various VA planning information is needed to determine the scope of work that will be required to meet a medical program's construction needs. It is also vital to the construction program's ability to determine a plan for meeting such needs because many planning factors are dependent upon the scope of work to be done. Planning information in the data base should include

- a clinical inventory of the medical services available at each VA medical care facility and the equipment, workload, and staff currently used to provide those services;
- the medical services actually provided at each medical center together with workload and staffing data for the current and planning periods;
- the capacity and condition of current plant systems;
- the available space at each medical center for new construction;
- a list of projects already planned for each medical center;
- the geographic location of the eligible veteran population by major eligibility category;
- the design requirements for each type of facility (for example, nursing home, domiciliary, outpatient clinic);

- planning standards (for example, workload and staffing projections, space planning criteria); and
- quality control standards for project scope, space program, and data package.

Some of these data are the same as those needed by MEDIPP planners, including clinical inventories, the geographic location of the eligible veteran population, and a list of projects already planned for each facility. The rest are essentially unique to the construction process.

Construction planning data should meet the following criteria:

- be timely and available to meet established milestones in the process,
- be consistent and reliable over time,
- be comparable between facilities and among sources,
- be accurate and reliable, and
- be readily accessible to users in a form useful for the purposes for which the data are designed.

## Availability of Data

VA does not have all of the data it needs for construction planning. It has developed a basic inventory of the clinical services offered in each of its facilities for use in medical care planning. However, it does not have a comprehensive inventory of the equipment and facilities used to provide these services. VA has also begun a comprehensive assessment of the physical condition of its oldest medical care facilities—those most likely to require construction to remedy current physical plant and equipment deficiencies. It does have a list of projects already planned for each medical center in its facility plans. But, VA does not have a complete and up-to-date assessment of the space available at each medical facility for construction.

Reliable clinical workload and staffing data are also not available, although VA has completed new staffing standards for use in medical care planning. However, VA has no reliable means of assessing the clinical workload associated with any specific change in the types or levels of medical services offered. This is because VA does not capture clinical or staff workload data on a per patient or per illness basis.

In chapter 4, we discussed deficiencies in current eligibility data available to VA medical care planners— primarily the lack of complete data on the total number of veterans eligible for VA medical care, or on their distribution by eligibility category.

VA has no complete set of up-to-date design, staffing, space, and workload standards and criteria for use in construction project design. Standards are not updated on a regular cycle, and some hospital functions do not have definitions of standards. Booz, Allen & Hamilton found that space planning criteria are considered out-of-date for pathology, ophthalmology, and pharmacy, as well as for several other medical services. It also noted that space planning criteria are nonexistent for data processing, adult day-care centers, hypertension, and risk factor clinics.

VA has been able to reach substantial agreement among VA construction participants on a prototype nursing home design—in four basic configurations, of one or two stories, and with 60, 120, or 240 beds—with many standard design and space features. However, resistance still exists to the design by medical center directors and other DM&S field staff, reflecting the general perception that each medical center is unique and thus requires a unique design.

Finally, VA does not have a consistent set of quality control standards for determining a project's scope and preparing a project's data package. Indeed, VA has no formal guidelines for preparing the data packages containing the clinical workload and staffing data that are used to develop conceptual design alternatives for specific projects.

All of these data problems are highlighted not only in the Booz, Allen & Hamilton study, but also in an internal study of the construction process conducted by the Office of Construction. Our interviews, as well, indicated that there is little agreement between DM&S and the Office of Construction, or within DM&S, concerning the appropriate standards, design principles, and other criteria that should be used in designing VA medical care facilities. The lack of a clear process to make decisions or to revise standards and criteria, combined with a decision-making process that virtually requires consensus by all parties concerned at each stage of the construction process, adds to the time it takes to turn an identified construction need into a completed project.

## Setting Priorities for Projects

The last activity in the construction planning phase is to meld the MEDIPP-identified and medical center-identified needs lists into a single, prioritized list of individual projects that will meet the medical program construction needs. The national construction strategy should guide the preparation of this list, since it should identify the criteria to be used in the prioritization methodology. A priority should be assigned to each project based upon the medical program priorities that the project

serves. Finally, all construction projects must be prioritized against each other because an optimal allocation of scarce resources requires clear priorities that can be used to evaluate allocation decisions. VA plans to use its new construction prioritization methodology for this purpose beginning with the FY 1987-1991 Five Year Medical Facility Construction Needs Assessment, due to the Congress at the end of June 1986.

However, construction needs are not driven by clinical deficiencies alone. Indeed, physical deficiencies in current facilities—such as electrical, fire, and safety—can be detrimental to both the quality and efficiency of medical care delivery. We therefore believe that projects based on such factors should be an integral part of an effective national construction strategy for meeting VA's medical care needs. But, construction projects based on these deficiencies should be considered in light of the priority of the medical care services the facility provides.

## Methodology for Setting Priorities

Concerned that present decisions regarding allocations of medical facility construction dollars represent not only very large expenditures in the near term but also have a marked influence on VA's capacity to provide care over the next 20 to 30 years, the Senate Appropriations Committee, in June 1984, directed VA to develop a formal, quantifiable, and objective methodology for prioritizing major construction projects. The Committee believes that evaluating the implications of the way VA plans, justifies, and sets priorities for medical construction projects is fundamental to understanding both how VA forecasts the future medical care needs of veterans and plans construction projects to meet those needs, particularly for veterans with service-connected disabilities.

In June 1985, VA issued a report entitled, A Methodology for Prioritizing Major Construction Projects in the Veterans Administration. The report describes the system VA will use to objectively rank construction projects in a single priority list. The FY 1987-1991 Five Year Medical Facility Construction Needs Assessment will be the first construction plan that fully reflects the results of the methodology. Representatives from several VA offices (DM&S, the Office of Construction, the Office of Budget and Finance, and the Office of Planning and Program Evaluation) comprised the interdisciplinary team that developed the methodology.

DM&S will use the prioritization methodology as a primary management tool in determining the relative importance of individual major construction projects and in establishing priorities. It was not designed for use in the initial justification of the need, size, or function of projects. VA

believes that these questions should be determined through the appropriate processes of policy development, program planning, and architectural/engineering design.

VA plans to apply this procedure at two different stages of the construction process. The first time it will be used is when a project is initially identified in a medical center's 5-year facility plan. Although the methodology uses fairly refined and well-developed data, which are generally not available at this stage of the construction process, VA believes that the methodology should be used at this stage in order to objectively assess a project's relative importance against all other projects. The prioritization of projects scheduled for the "outyears" (that is, the period beyond a 5-year plan) may change if, for example, the project's scope or the facility's mission undergoes a major change. In such cases, the project will be re-prioritized, using the prioritization methodology. The second stage at which the methodology will be used to rank projects is during the Advance Planning Fund process at the time when a conceptual alternative is selected. At this point, the data needed for use by the methodology are available because of existing data systems.

VA believes the new methodology for setting priorities will result in formalized procedures that will assure accountability, accuracy, reliability, and the application of necessary program and technical knowledge in the process. DMAS will annually review the methodology and update it as necessary to reflect changes in program or policy, modifications in the planning process, and the availability of new criteria or data. The seven key features the methodology was designed to provide are:

(1) consistency with established program and construction policy, as found in authorizing statutes, legislative history, and agency guidance;

(2) responsiveness to changes in statute and policy, with a provision for an annual formal review and adjustment of priority factors to reflect new legislation, program requirements, or policy directions;

(3) capacity for refinement as new data, additional criteria, or improved project scoring procedures are developed;

(4) potential for adaptation and application to additional lists of construction projects, in order to further support systematic facility, budgetary, and program planning;

(5) attention to the important considerations in facility planning including policy emphases, a balance in the importance given to the various kinds of facilities that are essential in a comprehensive medical care system, and the relative facility deficiencies and program requirements;

(6) explicit criteria systematically and objectively applied, which will be clear to those who have a responsibility or an interest in reviewing VA construction programs; and

(7) ease of understanding, with simple, straightforward mathematical procedures applied in order to facilitate explanation, application, direction, and future improvement of the methodology.

The new methodology divides construction projects into 18 categories (for example, nursing home, clinical improvement, seismic). Within each category, the methodology is presented in five sections:

(1) category description—definition of the construction category;

(2) criteria descriptions—list of criteria followed for a particular construction category together with definitions;

(3) criteria weights—the relative importance of the criteria within each category;

(4) data sources—the data sources that will be used to gather the information needed to score the project against the criteria; and

(5) scoring—the actual application of questions used to determine the degree of deficiency being corrected by the project for each of the category-specific criteria.

The methodology has two principal stages whereby panels of experts meet to determine the relative importance of specific criteria within and among project types. In the first stage, each project is evaluated and scored according to criteria pertinent to the type of project (for example, clinical improvement, domiciliary program, fire and safety). The criteria address items such as workload, functionality, physical deficiency, unmet medical care needs in each medical district, and other factors specific to each category. In many instances, the criteria rely upon data and judgments gathered from other ongoing processes such as MEDIPP, reviews by the Joint Commission on Accreditation of Hospitals, systematic external review process reports, fire/safety equivalency evaluation

surveys, and other studies done on a regular basis. A panel of raters, selected from individuals in DM&S and the Office of Construction who are most familiar with the specific medical center and project, scores and evaluates each project. The end result of stage one is a rank ordering of projects within each major construction category.[12]

Stage two involves integrating projects from all the 18 major construction categories into a single list. The first step in this stage requires that each construction project score be standardized on a 10-point scale. This is accomplished by dividing the sum of the criteria weights for each category into the sum of the weighted scores for each project in the category. In step two, each project's standardized score is then multiplied by a program emphasis weighting factor that reflects construction and program policies. For example, a nursing home care project is given a programmatic emphasis weight of 90, while a domiciliary is assigned a weight of 40. The result is a final score for a project that determines its standing in the priority list. The last step in this stage is to rank order all projects according to their final score from highest to lowest. The end result of stage 2 is a priority list that reflects objective measures of facility deficiency or program need, as well as current policy considerations.

VA believes that the resultant priority list addresses two levels of importance. First, projects are ranked within their respective categories based upon the number and degree of deficiencies or needs addressed by each project as compared with similar projects. And secondly, DM&S policy considerations are factored into the prioritization process by weighting programmatic areas. Table 5.1 lists the methodology's programmatic groups, construction project categories, and programmatic emphasis weights. Tables 5.2 and 5.3 and their accompanying discussion present an example of the methodology for a clinical improvement project.

[12]Appendix VII is an excerpt from VA's prioritization methodology that describes the criteria, weights, and scoring procedure for a clinical improvement project under stage 1.

**Table 5.1: Relationships Among Programmatic Groups, Construction Project Categories, and Programmatic Emphasis Weights**

| Programmatic group | Construction project category | Programmatic emphasis weight (percent increase) |
|---|---|---|
| Hospital replacement/ modernization | Replacement/modernization[a] | 85 |
| | New[a] | 75 |
| Extended care | Nursing home care | 90 |
| | Domiciliary | 40 |
| Ambulatory | Outpatient improvement | 90 |
| Inpatient hospital | Clinical improvement | 85 |
| | Patient environment | 70 |
| Nonclinical support | Administration | 50 |
| | Dietetics | 70 |
| | Laundry | 60 |
| | Parking | 65 |
| | Warehouse | 60 |
| Safety/physical plant | Fire and safety | 90 |
| | Seismic | 60 |
| | Electrical | 75 |
| | Heating, vent, and air conditioning | 70 |
| | Boiler | 70 |
| Research/education | Research | 65 |
| | Education | 50 |

[a]Replacement/modernization and new are considered as one project category in the prioritization methodology.

## Prioritization Methodology for a Clinical Improvement Project

In stage one, each project in the clinical improvement construction category is evaluated and scored.

**Table 5.2: Initial Project Ranking**

| Criteria | Weight | X | Score | = | Weighted Score |
|---|---|---|---|---|---|
| **Project A** | | | | | |
| A) Professional delivery capability | 3.8 | | 7.0 | | 26.6 |
| B) Workload | 9.4 | | 9.0 | | 84.6 |
| C) Functionality | 8.0 | | 4.0 | | 32.0 |
| D) Physical deficiency | 9.6 | | 8.7 | | 83.5 |
| **Total** | **30.8** | | | | **226.7** |
| **Project B** | | | | | |
| A) Professional delivery capability | 3.8 | | 3.0 | | 11.4 |
| B) Workload | 9.4 | | 8.3 | | 78.0 |
| C) Functionality | 8.0 | | 4.9 | | 39.2 |
| D) Physical deficiency | 9.6 | | 7.4 | | 71.0 |
| **Total** | **30.8** | | | | **199.6** |

In stage two, projects from all major construction categories are integrated into a single list, as follows:

- Step one:
  Standardize scores within each project category:

$$\frac{\text{weighted score}}{\text{criteria weights}} = \frac{226.7}{30.8} = 7.36 \text{ standardized score for Project A}$$

$$\frac{\text{weighted score}}{\text{criteria weights}} = \frac{199.6}{30.8} = 6.48 \text{ standardized score for Project B}$$

- Step two:
  Apply programmatic emphasis weights:

$$\text{standard score} \times \text{programmatic emphasis weight} = \text{final score}$$

$$7.36 \times 1.85 = 13.62 \text{ Project A}$$

$$6.48 \times 1.85 = 11.99 \text{ Project B}$$

- Step three:
  List projects from highest to lowest score.

**Table 5.3: Final Project Ranking**

| Project rank | Project | Construction category | Final score |
|---|---|---|---|
| 1 | N | Fire/safety | 16.34 |
| 2 | H | Replacement/modernization | 15.25 |
| 3 | S | Nursing home care | 13.82 |
| 4 | A | Clinical improvement | 13.62 |
| 5 | B | Clinical improvement | 11.99 |

Source: Example used is found in VA's report entitled, A Methodology for Prioritizing Major Construction Projects in the Veterans Administration, June 1985.

## Construction Programming Phase

This phase should begin with the listing of approved, prioritized projects, and end with the selection of a conceptual design for a specific project. Projects should be chosen for initial funding from the prioritized list of construction projects. This funding allows VA to explore various corrective strategies, propose alternative conceptual approaches, and enhance decisionmaking for the development of future construction projects.

The projects chosen for funding should be those at the top of the prioritized list of approved construction projects. By definition, these projects are expected to make the greatest contributions to achieving VA's priority medical care needs. Two or more conceptual alternative designs are then developed to identify the best design solution for the medical needs the project is designed to serve. Cost estimates should be developed for each alternative. Finally, one design is chosen as the basis for developing detailed working drawings to be used for preparing project construction budget estimates, contract bidding, and actual construction.

Project planners should ensure that all "domino effects" on services resulting from a proposed project are included in the scope of the project. For example, a larger kitchen or laundry may be needed if a nursing home is added to a hospital. Medical centers should provide information about unique plant characteristics or medical services that the planners should consider in developing plans for the new project. Examples include an unusual siting of the present hospital or a need for additional elevators for vertical growth but no location for them.

Projects should be selected for final funding based upon a strategy that assures an optimal mix of projects (replacement/modernization, outpatient clinics, safety deficiencies, etc.) and reflects their relative priority. The budget for each project should be separately scrutinized to ensure that it meets the programmatic or functional deficiency at the least cost. Project selection should continue down the priority list as far as VA expects it will receive funding, based upon the budgetary ceiling received from OMB.[13]

## Current Weaknesses

In 1985, VA did not apply its prioritization methodology until the data packages used for developing conceptual project designs had been largely completed. VA does plan, however, to use the methodology to prioritize projects for the annual Five Year Construction Needs Assessment. A major reason for waiting until the data packages are complete to prioritize projects is that initial project justifications are often general and rather vague. Developing data packages requires providing more detailed workload and staffing estimates than are given in the initial project justification. The prioritization methodology relies on this data in part to rank projects. VA recognizes that the data upon which the methodology relies need to be improved. To be truly effective, the methodology must be guided by the results of an effective health care planning process that establishes clear medical care priorities and by a national construction strategy designed to turn these medical care needs into cost-effective construction projects, as necessary.

As discussed next, lack of clear guidance and a methodology for developing the data packages, whose information is used in the prioritization methodology, are major contributors to delay in preparing these packages. According to an Office of Construction study, data package development adds from 8 to 17 months to the construction process.

### Data Needed

The data needed in construction programming include much of the same data needed for construction planning, but the focus is now on fewer projects and the level of analysis is more detailed. The data needed include

(1) reliable, detailed estimates of the clinical workload—for example, number of outpatient visits, surgical cases—to be provided by the

[13]While OMB is reviewing VA's budget, it provides VA guidance on the future spending levels that it will accept.

planned project, and the staff and equipment necessary to support that workload;

(2) reliable, up-to-date workload and staffing guidance and standards to be used in preparing those estimates;

(3) reliable, up-to-date space and functional design standards for use in developing cost-effective design alternatives for a facility to support the planned workload;

(4) capacity and condition of current plant systems;

(5) available construction space at the medical center where the project is to be built; and

(6) a list of projects already approved for the facility, if any, and their functional relationship to the current project.

Availability of Data

We and Booz, Allen & Hamilton both found that VA did not have the data needed to adequately support construction programming activities. Booz, Allen & Hamilton noted a lack of reliable, up-to-date space and functional design standards. We could find no clear, written guidelines for developing the data packages containing workload, equipment, and staffing estimates used for conceptual design. Also, the data used for preparing these estimates are not reliable, because they are largely derived from the same data bases—AMIS, PTF, PAID, and RCS 10-141—used for MEDIPP, budgeting, and hospital management. The weaknesses of these data are discussed in chapter 2. Reliable per patient and per illness clinical data would greatly improve the accuracy of the clinical workload and staffing data provided in the data packages, and would certainly decrease the time and effort necessary to produce such data.

DM&S is responsible for preparing the data packages used for developing conceptual design alternatives. These packages contain such estimates as number of outpatient visits by clinic, number of radiology visits or treatments, estimated average number of patients for each bed section in a hospital, plus estimates of the type and number of staff necessary to support each type of visit, bed section, or service.

Because there are neither clear guidelines for developing the data packages nor reliable data on which to base the estimates contained in the

packages, considerable time is spent in debating the accuracy, usefulness, and appropriateness of the estimates provided by facility staff. Any questions about these estimates that the Office of Construction may have must be funneled through the DM&S Central Office to the facility, and then back through the DM&S Central Office to the Office of Construction. The inability of Office of Construction personnel to routinely interact with facility staff in developing data packages produces delays and a certain degree of distrust on both sides.

VA has developed staffing guidelines for management use. We did not review the methodology used in developing those guidelines, and we do not express an opinion on their potential for financial management use. If reliably and routinely updated, they could provide a useful source of data for all phases of financial management, including construction planning and programming.

In addition, the lack of current space and functional design standards for specific types of projects encourages customized design solutions, rather than adapting design standards to the specific design problems at hand. This also creates delay, as appropriate standards and design options are debated and consensus reached.

The lack of functional and space standards which are useful has resulted in, for example, designs which located a patient waiting room directly between the surgical suite and the surgical intensive care unit. Surgical patients must be wheeled through this area on the way to their rooms. Another hospital was plagued with numerous design errors, which included the nonfunctionality of the surgical intensive care unit, the medical intensive care unit, and the operating room suite; insufficient outlets and handwashing facilities in ambulatory care; an inadequate electrical system; and a faulty fire alarm and sprinkler system. As a result of all these factors—the lack of clear guidance and reliable information for developing the workload and staff estimates in the data packages and the lack of current, useful space and functional design standards—it can be difficult to judge whether any particular design concept eventually chosen is necessarily the most appropriate and cost-effective for the needs it was designed to meet.[14]

[14]The utility of design standards based on actual workload is illustrated by our recent report on how VA plans for the number of operating rooms needed in each hospital. Currently, VA assumes that 1 operating room will support 28 surgical beds and that all patients admitted to such beds will have surgery. We applied our own model, based on actual facility workload, to 24 construction projects and determined that VA is building or planning to build 29 unnecessary operating rooms as part of these 24 projects. See VA Health Care: Too Many Operating Rooms Being Planned and Built (GAO/HRD-86-78, April 1986).

## Budget Formulation Phase

Our own audit work does not extend beyond the construction programming phase. However, we agree with the construction model developed by Booz, Allen & Hamilton for the remainder of the process. It substantially supports the criteria for sound financial management outlined in appendix I.

Once a construction design concept is selected, detailed working drawings are developed. Prior data from the cost of similar projects can be used to develop budget estimates for the project. Once construction funding has been approved by the Congress, contract bids can be solicited and a contract awarded.

## Budget Execution Phase

Once funding is received and a contract is awarded, actual costs should be tracked to budgeted costs on a project-by-project basis. A critical path method network is prepared and used to monitor contractor performance. Standards should be used to monitor construction quality and timeliness. Variances should be analyzed and, if necessary, corrective action taken. Further, this assessment should be used as an input to future planning, programming, and budgeting decisions. Significant project cost overruns and underruns should be reviewed to determine the reliability of cost estimating techniques.

## Audit/Evaluation Phase

Actual performance should be compared to planned performance in order to identify variances. Analysis of such variances should be used as input to future planning, programming, and budgeting activities, and for updating design, staffing, and workload standards and criteria. During this phase, management should be able to assess its effectiveness in achieving its goals and objectives.

## Comments on Construction Budgeting, Execution, and Audit/Evaluation Phases

Booz, Allen & Hamilton's overall findings regarding the VA construction process, including the final three phases, are in appendix II. Basically, it found that VA's primary construction problems were in the planning phase. The firm defines this phase as including all activities we include in construction planning and programming. Despite the problems in construction planning, Booz, Allen & Hamilton concluded that, on the whole, VA constructed high quality health care facilities that were completed within established cost targets.

Booz, Allen & Hamilton did not assess whether the facilities constructed could have been more effectively and quickly designed and built at

lower cost if VA implemented its recommendations. Thus, the study was not able to say if the facilities constructed were necessarily the most cost-effective or appropriate designs for the purposes each facility was designed to serve.

## Conclusions

Both our work and that of Booz, Allen & Hamilton found problems in the construction process. We found that the lack of effective integration between medical care planning and construction planning is perhaps the most serious deficiency in the construction process. This is due largely to weaknesses in VA's health care planning process—MEDIPP. MEDIPP does not produce a national medical care strategy with clearly defined medical care priorities for use in construction planning and prioritization. This, in turn, affects VA's ability to develop a national construction strategy based on such needs.

Clearly, the construction process weaknesses we and Booz, Allen & Hamilton have identified cannot be remedied by focusing on the construction process alone. MEDIPP must also be improved. VA recognizes that the process needs improvement, concurs with the major findings and conclusions of the Booz, Allen & Hamilton study, and is examining ways of implementing some of the recommendations in that study.

However, there are a number of problems in the construction process that do not flow from MEDIPP. Among these is the lack of an adequate data base to support the construction process. The most serious problems for construction planning involve the lack of (1) a clear national construction strategy for meeting medical program construction needs; (2) reliable workload and staffing projections; (3) an up-to-date inventory of clinical programs and the facilities and equipment that support those programs; (4) clear, regularly updated criteria on function, staff, space, and design standards; and (5) clearly defined roles and responsibilities and a single point of accountability. All of these contribute to such characteristic features of the VA construction planning and programming phases as excessively customized design and prolonged debate and efforts to reach consensus on the workload, staffing, space, and functional design data used. Singly and in combination, these features lead to delays in construction planning and design that can and should be reduced.

The weaknesses in the VA construction process are serious, and critically affect VA's ability to effectively plan, design, and construct appropriate, quality, cost-effective medical care facilities to meet the future medical

care needs of veterans. An effective and efficient construction process is essential to VA if it is to meet the challenge of providing for the medical care needs of the nation's veterans—especially the rapidly increasing numbers of elderly veterans—in a time of limited budgetary growth.

As a first step to improve the construction process, the former Administrator of VA proposed implementing one of the Booz, Allen & Hamilton recommendations by merging the Office of Construction into DM&S. (Under 38 U.S.C. section 210(b), the Administrator must obtain a waiver from the Congress to implement this change without going through the budget process as is required.) Under such a merger, responsibility and accountability for the construction process would rest with VA's Chief Medical Director.

Congressional staff voiced concern that this move would eliminate the check on DM&S that the Office of Construction has historically played in the construction process. Therefore, the former Administrator had also proposed establishing a Construction Analysis function in the new Office of the Associate Deputy Administrator for Management to provide independent oversight of the overall construction program. The Administrator's proposed action would have been only the first step. It did not address such other important problems as the lack of regularly updated design, space, and functional standards, or the lack of clear, national medical care priorities to guide construction planning and prioritization.

In June 1986, the new Administrator circulated a draft proposal that would alter his predecessor's proposal by creating a new Office of Facilities under the Deputy Administrator for Logistics that would be responsible for all VA construction planning, prioritization, design, and construction. The new Administrator offered two major reasons for this change. First, since VA's construction process served all VA functions, not just medical care, he thought that responsibility and accountability for the entire construction process would be more appropriately lodged in an independent office directly answerable to the Administrator through the Associate Deputy Administrator for Logistics. Second, the primary mission of DM&S is the delivery of quality medical care to the nation's veterans, and "to potentially diminish" DM&S' ability to perform this mission by adding construction to its responsibilities would not be desirable.

Under the new draft proposal, DM&S would be responsible for developing a MEDIPP plan with clearly identified medical priorities, but the new Office of Facilities would be responsible for developing a construction

strategy and prioritizing projects to meet those needs. The new office would also have responsibility for developing VA's 5-year facility needs assessment, though DM&S would have review and concurrence authority. The plan would take effect October 1, 1986, with the beginning of fiscal year 1987, but most affected employees would be detailed to the new office on a transition basis as of June 30, 1986.

In summary, the major strengths of VA's construction planning and programming phases primarily consist of steps VA has taken to improve the process during the past 2 years. These include

(1) a new methodology for prioritizing construction projects that uses a set of weighted, objective factors based on available data (completed June 1985);

(2) the use of realistic budget ceilings in the 1985 MEDIPP plans that can be used to develop a more realistic set of clinically based construction projects in MEDIPP;

(3) the first steps toward a survey of medical centers to determine the current status, adequacy, and total deficiencies in the physical plant (to date, funds have been received to conduct the survey and 18 architectural/engineering firms were awarded contracts to undertake the work); and

(4) a debate on ways of implementing some of the Booz, Allen & Hamilton study recommendations for improving the construction process.

Among the current weaknesses we identified are

(1) the lack of a national health care strategy with clearly identified medical care priorities for use in construction planning and prioritization;

(2) the lack of a clear, national construction strategy for meeting medical program construction needs;

(3) the lack of an adequate data base [illegible] the construction process;

(4) unreliable clinical workload and staffing data that affect the usefulness of the new prioritization methodology and the ability of VA medical centers to prepare useful clinical workload and staffing data (the "data

packages") on which to base conceptual design alternatives for specific medical care projects; and

(5) the lack of clearly defined roles and responsibilities for major participants as well as the lack of a clearly identified single point of accountability for decisionmaking.

## Recommendations

We believe a comprehensive strategy is needed to correct the weaknesses in the VA construction process. Therefore, we recommend that the Administrator of VA develop a phased strategy, with clear, enforced milestones, for overhauling VA's construction process. This strategy should include actions that would

(1) require that MEDIPP produce a national medical care strategy, with clearly defined medical care priorities, and the construction projects to support those priorities;

(2) establish a comprehensive set of design standards for each major type of VA medical care facility (for example, nursing homes, outpatient clinics, domiciliary facilities, and primary, secondary, and tertiary hospitals) for use in the construction process;

(3) establish a comprehensive set of workload, staffing, and space design standards for each major function in a VA medical care facility (for example, patient room, surgical suite, and kitchen area) for use in the construction process;

(4) establish clear milestones for the planning, design, and construction of each major type of facility; and

(5) clearly define the roles and responsibilities of major participants and assign primary responsibility and accountability to one office for both the timeliness and results of each major step of the process.

The implementation of a comprehensive strategy for improving VA's construction process would provide VA with both a construction process and supporting data that could ensure that both the nation's veterans and other taxpayers are receiving full value for every dollar spent on VA health care construction.

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# Central Offices of the Departments of Veterans Benefits and Memorial Affairs

As noted in chapter 1, we present limited information on financial management at the VA Departments of Veterans Benefits and Memorial Affairs because the Senate Committee on Veterans' Affairs requested that we concentrate our review on the DMAS and major construction. In addition, budgeting for these departments is largely a matter of determining eligibility and providing the benefits or services which are mandated by law. The costs, therefore, are relatively uncontrollable.

We found that both departments have structured planning and programming processes and that they produce annual program performance and financial plans with monthly variance reports in their budget execution cycles. Financial and program performance reviews are made to assess variance from plans, and the information from these reviews and from audit and evaluation reports is used in future program/planning and budgeting cycles. Weaknesses, such as incomplete eligibility files in the BIRLS subsystem and internal control weaknesses in the Compensation and Pension System, were noted. In addition, we found that Veterans Benefits does not record an accrual for estimated future benefit payments to personnel currently serving in the military. However, major initiatives are underway to improve the information the departments use for financial management.

In this chapter, a brief overview of the mission of each department is presented, followed by our financial management criteria tailored to each. We assess the ability of the departments to meet the criteria in their current operations, and we describe their efforts for improvement. Flowcharts and descriptions of financial management in the departments are in volume 2 of this report.

## Missions of the Departments of Veterans Benefits and Memorial Affairs

The Department of Veterans Benefits is responsible for providing direct benefits and services (except medical) authorized by law to veterans and their dependents. Benefits and services include compensation for service-connected disabilities; pensions for aged, needy, and unemployable veterans; vocational rehabilitation assistance; educational and training assistance; home buying assistance; life insurance coverage; estate protection services for veterans who are legally disabled; and information and assistance through personalized contacts. The budget authority requested for the Department in 1986 was $10,186,000,000 for compensation benefits; $3,838,000,000 for pension benefits; and $490,889,000 for administrative expenses. The 1986 request provided for 12,894 full-time employees to perform such duties as

- operating 59 regional offices or medical/regional office centers nationwide,
- conducting 2.3 million personal interviews,
- servicing 2.7 million compensation and pension claims, and
- making 1.7 million education assistance awards.

The Department of Memorial Affairs is the smallest of the three operating departments in VA both in terms of budget and employees. The Department's budget authority requested for fiscal year 1986 was $44,269,000 for general administration and an average of 1,161 full-time employees. In addition to this request, the compensation and pension appropriation request included $136,800,000 for procurement of headstones/markers, headstone allowance, plot allowance, plus other benefits and miscellaneous assistance. The Department is responsible for:

- the interment in any national cemetery with available grave space of the remains of eligible deceased service persons and discharged veterans (together with their spouses and certain dependents) and for the permanent maintenance of these graves;
- the marking of graves of eligible persons in national, private, local, and state veterans' cemeteries; and
- administering a grant program for aid to states in establishing, expanding, or improving state veterans' cemeteries.

## Criteria for the Financial Management Systems

We believe the financial management systems of the departments should address the following questions:

- What types of services are the departments now providing, for whom, and at what cost?
- What are the variances between the planned services (that is, budgeted costs of the services) and their actual cost to date? What are the causes of the variances?
- What types of services will the departments be providing in the future on a multiyear basis, to whom, and at what estimated cost?

In order to answer these questions, workload measures of the types and quantities of services provided (that is, number of burials, number of markers, etc.) are needed. The cost of providing these services and estimates of the resources required for projected caseloads are also needed.

## Availability of Data Needed

Although the departments do have data on the types, quantities, and costs of services now provided, their data systems have weaknesses. Both departments have data from which they project their future workloads, but we found that Veterans Benefits does not calculate and record an accrued liability, which includes the estimated benefit payments to be made to personnel currently serving in the military.

Three primary systems maintain data on the types, quantities, and costs of current services: BIRLS, CALM, and the Compensation and Pension System. BIRLS and CALM have been discussed in previous chapters. The Compensation and Pension System computes the benefit payment amounts and maintains detailed records on claims and payments made.

## Problems With the Data Systems

As mentioned previously in this report, our VA Profile identified the overall systems challenge posed by VA's slow, outdated automated data processing systems. These systems are designed around obsolete batch-data-entry-and-retrieval and sequential-processing techniques that do not produce information quickly. In addition, the previous report identified these informational weaknesses which affect the Veterans Benefits and Memorial Affairs departments:

- Eligibility information in VA's central automated file of individual veterans sometimes leads to improper initial eligibility determinations for veterans, their dependents, and survivors who apply for benefits.
- Errors in the computation of benefit payments stem from design, operation, and internal control weaknesses in the automated Compensation and Pension System and in the education benefit payment systems.

BIRLS maintains automated files for individual veterans. These files include information on verified military service for veterans discharged since January 1973, indicators for locating VA files with information on benefits applied for and received, and current income status. The primary problems with BIRLS, as pointed out in the VA Profile, are (1) the information in BIRLS is incomplete and (2) the information cannot be retrieved quickly enough to assist in eligibility determinations. Veterans Benefits regional office staff, in cases where a claimant applies for VA benefits for the first time or where the claimant's hard copy claims folder cannot be located, must rely on BIRLS to corroborate the eligibility information supplied by the claimant. Since the BIRLS files are incomplete, the regional staff often does not have a readily accessible, reliable,

or independent source of corroboration for claimant-supplied information. Thus, many awards for benefits are based on incomplete and inaccurate eligibility information, resulting in overpayments.

After Veterans Benefits regional staff determine eligibility, the information needed to calculate the benefit payment is entered into the appropriate VA compensation or pension system. The Compensation and Pension System, which audits the amount of benefit payments and disburses benefit payments, was installed in the 1950s. It is not documented and has undergone many modifications. VA has had problems maintaining the system and cannot ascertain the accuracy of the system's computations of benefit payment amounts. In fiscal year 1983, VA accounts receivable from benefit overpayments totaled more than $876 million. In its December 1985 Federal Managers' Financial Integrity Act report, VA recognized that it had serious system and internal control problems in its compensation, pension, and education benefit payment programs and outlined plans to correct these problems.

## How Variances Are Detected

The departments measure variances between the operating plan obligations and the costs as recorded in the CALM system. The variances are reported through CALM on a monthly basis. The major variances in obligations and employment are reported monthly in a "Top Management Report," which is distributed to various offices in the Congress and in VA. The departments attempt to explain the major variances in this report.

VA requires midyear and end-of-year reviews of operations. VA's Office of Program Planning and Evaluation and Office of Budget and Finance issue guidelines for the end-of-year review in October. The review is held in November, and its findings are used to adjust current operating plans and for guidance in developing the next fiscal year's budget.

## How the Need for Future Services Is Projected

VA has a structured planning/programming process to establish agency goals, evaluate them, and choose means to achieve them and to institute 5-year budget and program/performance goals. VA's Office of the Deputy Administrator issues the "5-year Program/Budget Call" each year, which requests an update of VA goals, the formulation of 5-year program plans and budget estimates necessary to achieve these goals, and the identification of actions planned for the next 5 years.

Memorial Affairs projects its caseloads based on death rates and other factors. It uses costs by object class as collected by the CALM and PAID systems as a basis for the dollar projections. The Veterans Benefits Central Office estimates the benefit payments and the staffing requirements for the 5-year plans.

To project the future staffing requirements, the Central Office relies on time and motion studies, conducted about every 2 years, to determine the average time required to perform each step in servicing a case. Based on the expected workload and these average times, the Central Office projects its staffing requirements. It estimates the benefit payments from a trend analysis of past benefit payments by periods of service, such as World War II or the Vietnam era. It analyzes the average cost-per-case and caseload for each period of service for the past several years and projects the caseload and average cost-per-case based on this historical data. The estimate for benefit payments is then derived from the projected caseload and average cost-per-case. Although Veteran Benefits estimates benefit payments on a multiyear basis, it does not estimate the accrued liability for benefit payments as explained below.

## Accrued Liability Not Recorded

Veterans Benefits does not (as of the end of fiscal year 1985) record an accrued liability which includes the estimated benefit payments to be made to personnel currently serving in the military. VA believes that the relative cost versus benefits and the feasibility of developing reliable actuarial data necessary to develop the accrued liability are questionable. We believe that not only would the calculation and recording of the accrued liability provide a fairer estimate of liabilities for financial statement purposes, but also that the information could be used for planning.

For example, calculating the accrued liability for benefit payments could have an impact on medical care planning in the following way. VA has four prioritized status categories for receiving medical care, listed here in descending order of importance:

(1) service-connected disability;

(2) nonservice-connected disability with a service-connected disability which does not require medical care;

(3) nonservice-connected disability and on VA pension rolls; and

(4) nonservice-connected disability and not on VA compensation or pension rolls.

Veterans in a higher status category must be treated with available resources before veterans in a lower status category. If VA calculated its liability for future benefits, it would be in a better position to plan for the status categories that depend on whether the veteran is on the compensation and pension rolls.

## VA's Plans for Improvements

The VA's ADP and telecommunications plans for fiscal years 1985-89 include redesigns of the BIRLS and the Compensation and Pension Systems. The redesign of BIRLS includes efforts to

- expand the amount of veterans' eligibility information recorded,
- use modern data base management techniques to maintain files more efficiently, and
- use modern computer terminals and telecommunications facilities to send information to users more promptly.

The goal of redesigning both systems is to ensure that benefits are made in accordance with the provisions of the laws authorizing the benefit programs and that these benefits are paid only to eligible veterans. To achieve this goal, the plans incorporate

(1) the use of modern computer terminals and telecommunications techniques to capture information in a timely manner;

(2) improved computer edits that can verify the accuracy of transaction information;

(3) the use of modern data base management systems and techniques to enter verified transaction information into computer files when the information is received; and

(4) the use of modern information retrieval systems, telecommunications systems, and computer terminals to communicate information to managers promptly.

These system redesigns appear to address the major problems with BIRLS and the Compensation and Pension Systems. The projects also address the major system challenges which we noted earlier in this chapter.

## Conclusions

Both the Department of Veterans Benefits and the Department of Memorial Affairs have numerous strengths in their financial management processes. For example, a structured planning/programming process exists for establishing agency goals and objectives, evaluating and choosing some means to achieve those objectives, and establishing 5-year budget and program/performance goals. An overall assessment is made of the 5-year program/budget plans of all VA departments and offices by the Office of Budget and Finance and the Office of Program Planning and Evaluation. Annual program performance and financial plans have monthly variance reports for budget execution.

Midyear and end-of-year financial and program performance reviews are made to assess variance from plans; the results are used in future program/planning and budgeting cycles. Likewise, the results of audit/evaluation reports of both the VA Inspector General and GAO are used. In addition, initiatives are underway to improve the information used in the financial management process, including the central accounting and workload reporting systems. However, we did identify three major weaknesses:

- The Department of Veterans Benefits does not record an estimated liability for benefit payments to be made to personnel currently serving in the military for financial statement purposes or for planning purposes.
- The BIRLS subsystem's eligibility files are incomplete and do not, in many cases, provide eligibility information quickly. Consequently, many compensation and pension awards are based on incomplete or uncorroborated eligibility information.
- The Compensation and Pension System has weaknesses in its design, operation, and internal controls, which leave in doubt the accuracy of its benefit payment computations.

## Matter for Consideration

We believe that although the financial management processes of the two departments are basically sound, some of the information provided by their management information systems needs to be improved. One action that VA should take to improve the financial management information is to calculate and record an accrual which includes an estimate of benefit payments to be paid to those individuals currently in military service. The liabilities of the compensation and pension programs would then be more fairly stated and this information could be used for planning purposes.

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# Major Elements of a Sound Financial Management Process

GAO's report, Managing the Cost of Government: Building an Effective Financial Management Structure (GAO/AFMD-85-35 and 35A), outlines major problems in federal financial management today and offers a conceptual framework that could be used to structure improvement efforts. That framework views financial management as four distinct, but interrelated, phases linked by reliable, useful program and cost data. This appendix summarizes what we believe should be the major elements of each phase. The phases are discussed in more detail in Managing the Cost of Government. We have used the elements in this appendix as our criteria for assessing VA's financial management processes and information.

## Planning/Programming

(1) There should be an analytic framework for evaluating the benefits and costs of alternatives for meeting desired objectives.

(2) Planning and programming information should be used in the budget process.

(3) Planning and programming should be integrated with financial management decisionmaking.

(4) There should be a mechanism to identify, evaluate, and select realistic goals and strategies for addressing major issues.

(5) A multiyear view should exist for those programs where sound choices cannot be made using the 1 year budget horizon.

(6) There should be a program structure that relates the costs of programs to the outputs (results, benefits) produced or missions served.

(7) The ability should exist to apply modern analytic techniques in assessing issues and alternatives.

(8) There should be a means to aggregate program costs by major activity area and agency as well as governmentwide.

(9) There should be feedback mechanisms that reliably, consistently, and systematically develop and provide useful program performance information and analyses to those who need it.

## Budget Formulation/ Presentation

(1) Budgeting and accounting should be integrated on a cost basis so that actual results can be measured against plans.

(2) Budgeting should utilize planning and accounting information.

(3) All government activities should be fully disclosed in the budget.

(4) The budget should systematically distinguish between spending for current operations and capital investment.

(5) Accounting and budgeting systems should focus not only on avoiding obligations in excess of amounts authorized (fund control) but also on helping management achieve maximum efficiency (cost control).

(6) Accounting and budgeting systems should be able to summarize financial transactions by appropriation, program, project, and organization.

(7) The budget should be accrual based. An accrual budget is one which is expressed in terms of cost to be incurred during a specific period rather than in funds to be obligated or spent.

(8) Budget estimates should be based on actual past program and project costs.

## Budget Execution/ Accounting

(1) Budgeting and accounting principles should be used which match the delivery of services with the cost of services.

(2) A system of detailed and summary management reports should exist that provides costs and accomplishments by the managers and organizations assigned the responsibility for controlling costs.

(3) The budget and accounting system should provide cost data on all programs and projects. This should include data on:

- inventories and undelivered orders,
- free services or costs paid by other appropriations or organizations (unfunded costs),
- depreciation, and
- unit cost.

(4) Agencies should prepare monthly cost-based reports that can be consolidated into annual departmental and governmentwide financial statements, audited, and an opinion rendered on their acceptability. The budget and accounting system should also provide immediate inquiry capability for special reports and analyses.

(5) Outputs (results, benefits) should be measured as well as inputs (resources in the forms of people, money, and facilities).

(6) The accounting system should provide financial data that include:

- costs and revenues displayed along several relevant dimensions such as appropriation, organizational unit, program, and project;
- obligations and funds, payment of bills, and the use of goods and services (costs); and
- performance information.

## Audit/Evaluation

(1) Analytical studies such as policy, program, and efficiency and economy analyses are needed particularly to identify and assess options for addressing major policy issues and performance problems.

(2) Evaluation research studies are needed particularly to measure the implementation, operation, and results of government policies, programs, and activities, including unintended and unanticipated results.

(3) Financial reports should be audited annually to increase discipline, enhance oversight, help ensure financial integrity, and strengthen internal control.

(4) A system of measuring program performance should exist that would collect and report consistent information on costs and accomplishments. This information should be monitored and evaluated.

# Summary of Booz, Allen & Hamilton Study of VA's Construction Process

This appendix briefly summarizes the Booz, Allen & Hamilton study of VA's construction process. It includes (1) an outline of the purpose of the study as defined by VA, (2) the study's methodology, (3) its major findings, and (4) its recommendations. Much of this material is drawn directly from the study and is noted as such.

Booz, Allen & Hamilton had several reasons for performing the study. First, the rapidly growing population of veterans aged 65 and older is likely to increase demand for VA health care and the need for either alterations to existing facilities or the construction of new facilities to meet that demand. Because the health care facility construction process is critical to meeting this need and hence to VA's ability to carry out its mission, VA believed that a study of the efficiency and effectiveness of the process was necessary.

A second purpose was to examine the validity of criticisms of the process from both within and outside VA. Increases in construction activity have already begun to strain available construction resources, and the current process has been criticized as being costly, lengthy, and inflexible. As stated by VA, the study had three goals:

- To determine, consistent with the health care mission of VA, the most effective and efficient internal organizational and procedural structures for defining, developing, designing, constructing, maintaining, and improving medical and health care related capital facilities of high quality, consistent with resource and timeliness considerations.
- To assist VA in evaluating the appropriateness, effectiveness, and efficiency of its current organizational and procedural structures for the functions described above.
- To implement, if appropriate, innovative, practical alternatives to VA's current organization and procedures for delivering health care facility construction programs, by means of fully supported recommendations for change.

To further define the purpose of this study, VA also identified 10 general study objectives grouped into the following 4 areas: organization, information and communication, program planning, and process control. Figure II.1 identifies the 10 general objectives and their relationships to each of these areas.

**Figure II.1: VA Health Care Facilities Construction Study Objectives**

**1. ORGANIZATION OBJECTIVE**

- IDENTIFY ALL ORGANIZATIONAL ELEMENTS INVOLVED IN THE CONSTRUCTION PROCESS AND IDENTIFY THE EXISTING POINTS OF FIXED DECISION AUTHORITY IN EACH ORGANIZATIONAL ELEMENT FOR EACH STEP IN THE CONSTRUCTION PROCESS. RECOMMEND IMPROVEMENTS TO OPTIMIZE THE APPROPRIATE ORGANIZATIONAL LOCATION AND MANAGERIAL LEVEL FOR DECISION AND STRENGTHEN THE CLARITY, TIMELINESS AND EFFECTIVENESS OF SUCH DECISIONS.
- EVALUATE THE ORGANIZATIONAL ELEMENTS INVOLVED IN THE CONSTRUCTION PROCESS TO DETERMINE IF RESPONSIBILITIES ARE CLEARLY ASSIGNED, IF DUPLICATION IN ACTIVITIES AND/OR RESPONSIBILITIES EXIST AND RECOMMEND IMPROVEMENTS WHICH WOULD CLARIFY SPECIFIC ORGANIZATIONAL RESPONSIBILITIES AND ELIMINATE ANY UNDESIRABLE DUPLICATIONS.
- EVALUATE THE STAFFING LEVELS, ORGANIZATIONAL LOCATION, PROFESSIONAL CAPABILITY, GOALS ORIENTATION AND INCENTIVES OF EACH ORGANIZATIONAL ELEMENT. RECOMMEND IMPROVEMENTS, IF APPROPRIATE.
- EVALUATE THE PROCEDURES AND OVERALL ADMINISTRATIVE EFFICIENCY WITHIN AND BETWEEN EACH ORGANIZATIONAL ELEMENT INVOLVED IN THE CONSTRUCTION PROCESS IN MEETING THE FUNCTIONAL RESPONSIBILITY OF THAT ELEMENT WITH RESPECT TO THEIR ROLE IN THE CONSTRUCTION PROCESS. RECOMMEND EFFECTIVE ALTERNATIVES, IF ANY.
- IDENTIFY ORGANIZATIONAL ELEMENTS (INCLUDING FIELD MANAGEMENT) WITH INTERESTS IN THE CONSTRUCTION PROCESS; DETERMINE THE NATURE, EXTENT, AND LEGITIMACY OF THOSE INTERESTS; AND DETERMINE WHETHER CURRENT PROCEDURES OFFER THOSE WITH LEGITIMATE INTERESTS APPROPRIATE OPPORTUNITIES TO INFLUENCE THE CONSTRUCTION PROCESS (INCLUDING THE DEVELOPMENT OF SPACE PLANNING CRITERIA AND OTHER VA DESIGN AND CONSTRUCTION GUIDELINES). RECOMMEND IMPROVEMENTS, IF APPROPRIATE.

**2. INFORMATION AND COMMUNICATION OBJECTIVES**

- IDENTIFY THE INFORMATIONAL NEEDS OF THOSE WITH A LEGITIMATE INTEREST IN THE CONSTRUCTION PROCESS AND DETERMINE WHETHER THOSE NEEDS ARE BEING EFFICIENTLY MET THROUGH THE APPROPRIATE ASSIGNMENT OF RESPONSIBILITY FOR DATA DEVELOPMENT AND DISSEMINATION. SUGGEST ALTERNATIVE MODES, AS APPROPRIATE.
- DETERMINE THE QUALITY, TIMELINESS, AND SUFFICIENCY OF COMMUNICATING AND COORDINATING DATA FLOW WITHIN AND AMONG ORGANIZATIONAL ELEMENTS (TO INCLUDE FIELD MANAGEMENT) AND MAKE RECOMMENDATIONS FOR IMPROVEMENT.
- DETERMINE THE QUALITY, TIMELINESS, AND DURABILITY OF THE DATA PROVIDED TO RESPONSIBLE ELEMENTS WHICH ARE REQUIRED TO PERFORM THE SEQUENTIAL STEPS OF THE CONSTRUCTION PROCESS. RECOMMEND IMPROVEMENTS, IF ANY.

**3. PROGRAM PLANNING OBJECTIVES**

- EVALUATE THE ADEQUACY OF THE RELATIONSHIP BETWEEN AND AMONG THE FOLLOWING PROGRAM PLANNING PROCESSES:
  - MEDIPP AND THE FIVE-YEAR FACILITY PLANS (FYFP);
  - THE FYFP AND THE FIVE-YEAR MEDICAL FACILITY CONSTRUCTION NEEDS ASSESSMENT (FYMFCNA), INCLUDING THE ADVANCED PLANNING FUND;
  - THE FYFP/FYMFCNA AND THE YEARLY PROGRAM PLANS;
  - THE YEARLY PROGRAM PLANS AND THE ANNUAL BUDGETS;
  - THE ANNUAL BUDGETS AND OPERATING PLANS; AND

  DETERMINE THE THE EXTENT TO WHICH THESE PROGRAM PLANNING PROCESSES AND THE DATA GENERATED THEREFROM ARE ADEQUATELY TRANSLATED INTO THE CONSTRUCTION PROCESS. RECOMMEND IMPROVEMENTS, IF ANY.

**4. PROCESS CONTROL OBJECTIVES**

- EVALUATE THE EFFECTIVENESS OF EXISTING CONTROL SYSTEMS FOR THE MEASUREMENT OF PERFORMANCE AGAINST THE GOALS OF QUALITY, COST CONTAINMENT, AND TIMELINESS OF DEVELOPMENT AND DELIVERY OF HEALTH CARE FACILITIES, AND IDENTIFY PROBLEMS AND IMPROVEMENTS, IF ANY.

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase III Submission—Proposals and Recommendations, April 1985. Booz, Allen & Hamilton.

## Methodology

The Booz, Allen & Hamilton study was carried out in three phases, with a study report developed at the completion of each phase. Phase I involved documentation of the Health Care Facilities (HCF) construction process. Information necessary to complete that phase was developed through extensive reviews of process documentation and through interviews conducted at 19 VA Medical Centers (VAMC) and with over 75 members of the Central Office staff in the Office of the Administrator, the Office of Construction, and the Department of Medicine and Surgery (DM&S).

In Phase II, data evaluations and analyses were performed to identify problems in the current process. Eleven different analyses were conducted in the four general areas of management concern encompassed by the study objectives:

- organization,
- information and communications,
- program planning, and
- process controls.

The final Phase II report resulted in a summary of 24 key problems, from which Phase III proposals and recommendations were developed. (See figure II.2.)

**Figure II.2: Procedural Problem Statements**

| PROBLEM AREA | PROBLEM SUMMARY |
|---|---|
| VA MEDICAL DESIGN REQUIREMENTS | . An absence of explicit guidelines on VA medical design requirements results in extensive customizing of VA construction projects. Functional project requirements are defined at the VAMC level, subject to undocumented national program requirements applied by VA Central Office project planning staff and program officials (Associate Medical Center Directors (AMDs)). |
| PROJECT SCOPE DEFINITION | . Initial descriptions of project scope developed by VAMCs generally do not provide an adequate basis for undertaking program and project planning activities. When first developed, they generally provide an inadequate description of the scope of individual projects. |
| PRIORITIZATION | . The current approach to prioritizing construction projects does not provide an adequate basis for resource allocation decisions. Adequate consideration of system and facility needs is diminished by an excessive emphasis on project funding strategies. As a result, the VA's ability to justify projects on the basis of need is diminished. |
| NATIONAL CONSTRUCTION STRATEGY | . There is no clearly delineated national strategy or plan for meeting the combined construction needs of the 172 VAMCs. This results in a piecemeal approach to VAMC development and suboptimal use of resources in meeting the needs of the VA medical system. |
| WORKLOAD/BED PROJECTIONS | . During recent years, workload and bed projections for individual facilities have changed significantly from year to year, resulting in changing requirements for construction projects. Changing requirements result in a recycling of project planning and design activities. |
| STAFFING PROJECTIONS | . Current procedures for developing staffing projections result in unreliable projections because of a lack of staffing standards and lack of a direct tie to program operating plans. This results in inaccurate space requirements for construction projects. |

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase III Submission—Proposals and Recommendations, April 1985. Booz, Allen & Hamilton.

**Figure II.2: Procedural Problem Statements** (Continued)

| PROBLEM AREA | PROBLEM SUMMARY |
|---|---|
| SPACE PLANNING CRITERIA | . Weaknesses in current space planning criteria contribute to the inefficiencies experienced in developing space programs. Excessive customizing of space programs occurs to compensate for obsolete criteria and inaccurate input. |
| QUALITY STANDARDS | . Procedures for revising VA planning and design criteria and standards may not adequately consider cost implications and may result in higher cost facilities than desired. |
| DESIGN CHANGES | . Changes are made in the design solution and, in some cases, project scope once a concept has been developed and approved. Changes involve recycling of preliminary planning activities and, in some cases, changes to working drawings and construction. |
| CONCEPTUAL ALTERNATIVES | . Excessive effort is required to develop the three conceptual alternatives required by VA operating policy when three real alternatives do not always exist. Concepts presented in those cases are not substantially different. |
| DESIGN REVIEW GUIDANCE | . Reviews of preliminary plans and, to some extent, working drawings tend to be unfocused and excessively broad in scope, resulting in inefficiencies in the reviews and in the incorporation of comments. |
| MONITORING REPORTS | . Standard reports currently available do not generally provide appropriate types of information and levels of detail for monitoring and evaluating problems in performance. Quality monitoring information is lacking for managers with responsibility for process performance. Information on performance against schedule is inadequate for managers with responsibility for individual projects as well as overall process performance. |
| MAJOR CONSTRUCTION COST ESTIMATES | . Excessive variability is evident among cost estimates developed for Major Construction projects and between the final cost estimates and low-bid estimates. The variability diminishes the value of estimates as a benchmark for cost control purposes. |

**Figure II.2: Procedural Problem Statements** (Continued)

| PROBLEM AREA | PROBLEM SUMMARY |
|---|---|
| MINOR CONSTRUCTION COST ESTIMATES | . Budget cost estimates for Minor Construction are unreliable indicators of project cost. They result in inefficiencies in monitoring costs for Minor Construction projects. |
| QUALITY MONITORING | . Procedures for monitoring the quality of data packages, space programs, and concepts require extensive coordination and frequently result in less than full agreement over the level of quality of these documents. |
| OPPORTUNITY FOR INPUT | . Because of poorly designed and executed review procedures, all organizations with legitimate interests in key project planning and design decisions do not have adequate opportunity for input. |
| PROCESS EVALUATION | . There is a general absence of effective process-level performance evaluation within the VA. Routine procedures are lacking for comparing VA process performance with the performance of other construction processes and for comparisons within the VA construction process. As a result, performance problems are not identified and corrected in a timely manner. |

**Figure II.2: Procedural Problem Statements** (Continued)

| PROBLEM AREA | PROBLEM SUMMARY |
|---|---|
| DUPLICATION | . Excessive duplication exists among organizations with responsibility for project management and management support functions, reducing the overall efficiency of the HCF Construction Process. |
| FRAGMENTATION | . Responsibilities for carrying out process responsibilities are excessively fragmented within and between DM&S, Q/C, and offices reporting to the Administrator, resulting in inefficient coordination and decisionmaking. |
| COORDINATION | . Excessive coordination is required to carry out planning and monitoring functions in the HCF Construction Process. |
| DECISIONMAKING RESPONSIBILITIES | . Responsibilities for key process decisions are shared among process participants or are undefined and result in inefficient decisionmaking procedures. |
| DECISIONMAKING CONSISTENCY | . Inconsistencies exist between the level of input and degree of interest in process decisions when decisions are pushed to the next higher level in the organization to resolve conflicts at lower levels. |
| STAFF CAPABILITIES | . Opportunities for staff development and advancement are limited within the current organizational structure. |
| PROCESS GOALS | . Process goals and objectives are not well understood among process participants. Behavior is excessively directed toward organizational goals and objectives, resulting in inefficiencies in project coordination. |

**Figure II.2: Procedural Problem Statements** (Continued)

| RECOMMENDATION | OBJECTIVE | CHANGES |
|---|---|---|
| . OVERALL FACILITY DEVELOPMENT APPROACH | . To provide a strategic context within which to identify individual construction projects | . Preparation of Facility Development Plans<br>. Development of planning data bases |
| . EARLIER, BETTER DEFINITION OF DESIGN PROBLEMS, CONSTRAINTS AND REQUIREMENTS | . To improve efficiency of design and effectiveness of program planning activities | . More detailed project planning for project included in 5-Year Construction Plan<br>. Formalized process for development of project scope for all projects<br>. Development of design programs and project management plans |
| . CLOSER COORDINATION BETWEEN CONSTRUCTION PROGRAM PLANNING AND MEDICAL PROGRAM PLANNING | . To improve the effectiveness of the construction program in meeting medical program needs | . Common submission cycle for all 5-Year Facility Construction Plans<br>. Central office construction guidance based on approved medical program plans<br>. Sequencing of construction planning after medical program planning |
| . PRIORITIZATION BASED ON BETTER DEFINITION OF CONSTRUCTION NEEDS AND STRATEGIES | . To provide a better basis for making resource allocation decisions | . Development of planning data base<br>. Project definition and categorization based on construction objectives<br>. District prioritization of construction projects (prior to national prioritization) |
| . STREAMLINED DESIGN PROCESS | . To increase the efficiency of design activities | . Development of schematic alternatives to resolve functional issues<br>. Further development during preliminary design<br>. One construction document review at 90 percent completion |
| . MINIMIZE COORDINATION BETWEEN CONSTRUCTION AND BUDGET PROCESSES | . To increase flexibility in continuing uninterrupted design activities | . Combined APF/Design fund for Major Construction or redefined design fund requirements |
| . BETTER PROCESS LEVEL STANDARDS AND CONTROL TOOLS | . To increase the effectiveness of project planning and management of the HCF Construction Process | . Improved space and functional standards<br>. Development of process performance monitoring indicators and systems |

## Organizational Recommendations Improve Accountability for Performance

The general organizational recommendations are to consolidate HCF construction process planning and control functions in DMAS. Full acceptance of the recommendations involves implementation of the following:

- Consolidate program and project planning responsibility in DMAS.
- Assign design and construction responsibilities to VAMCs for minor construction and nonrecurring maintenance projects and to the Office of Construction for major construction projects.
- Consolidate process control responsibility in DMAS with strengthened oversight capabilities in the Controller's Office.
- Assign support responsibilities to organizations, consistent with their process responsibilities and capabilities.

## Key Effects of Weaknesses

Booz, Allen & Hamilton identified five key effects of organizational and procedural weaknesses in the construction process, including increased cost, time delays, dissatisfaction over completed facilities, and other factors that can be directly measured or observed.

- Excessive time is required to carry out construction projects.
- Facility users are dissatisfied with their level of input into the construction process.
- Allocation of construction resources to meet construction needs is inefficient.
- Excessive staff effort is required to carry out construction project activities.
- The VA does not effectively identify and correct process performance problems.

The following excerpt from the Booz, Allen & Hamilton study examines the causes of the problems they identified.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process**

3. THE ANALYSIS IDENTIFIED FOUR PRINCIPAL CAUSES OF PROBLEMS

The initial focus of changes is on the causes of performance problems. By addressing the causes of poor performance, long-term improvements can be made.

This section describes four major causes of problems identified in the HCF Construction Process. As shown in Exhibit II-3, each is responsible for one or more of the performance problems identified in the previous section. The causes relate to organizational and procedural characteristics of the process and were identified from an analysis of problem statements generated in Phase II of this study. Changes that address these causes are necessary to improve overall process performance.

(1) Construction Planning in the Current Process Tends To Be Unsystematic and Poorly Coordinated

The root of many of the problems identified in the previous section is found in current construction planning procedures. Excessive time and staff effort are most evident in those activities undertaken to define project requirements, establish project requirements, and develop construction programs. User dissatisfaction is greatest in the area of facility functionality, requirements for which are developed during the planning phase of construction projects. Resource allocation inefficiencies are tied to a lack of long-range planning strategies and planning information. All appear to be attributable to the VA's current approach to planning construction projects and programs.

Current project planning procedures focus, to a large extent, on the individual project within a facility. At the facility level, individual construction needs are identified in two ways:

- Through an assessment of construction needs required to implement Medical District Initiated Planning Process (MEDIPP) initiatives
- Through a survey of users to identify other maintenance and upgrade requirements.

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Phase III Submission—Proposals and Recommendations, April 1985. Booz, Allen & Hamilton.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

| | PROCESS PERFORMANCE PROBLEMS | | | | |
|---|---|---|---|---|---|
| PROBLEM CAUSES | EXCESSIVE TIME | USER DISSATISFACTION | INEFFICIENT ALLOCATION OF RESOURCES | EXCESSIVE EFFORT | PROBLEM IDENTIFICATION AND RESOLUTION |
| LACK OF LONG RANGE STRATEGY AND INFORMATION FOR MEETING CONSTRUCTION NEEDS | X | | X | X | X |
| LACK OF USEFUL FACILITY DESIGN STANDARDS | X | X | | X | X |
| INADEQUATE CONTROL MECHANISMS FOR MONITORING PROCESS PERFORMANCE | X | | | X | |
| FRAGMENTATION IN PROCESS MANAGEMENT AND RESPONSIBILITIES | X | | X | X | X |

The resulting needs are defined as construction projects and compiled in the VAMC 5-Year Facility Construction Plan to provide a long-range plan of facility construction needs.

The weakness in this approach is the lack of emphasis given to overall facility development goals during project definition and development. The lack of a systematic approach to project definition results in inaccurate and incomplete construction project scopes. Lack of emphasis on the relationships among all construction needs results in inefficient development of the overall facility. In some cases, projects identified in this manner duplicate other projects or could more efficiently be combined with other projects. Solutions proposed for meeting current facility requirements sometimes preclude more efficient solutions to future facility requirements.

Program planning weaknesses are tied very closely to weaknesses in construction project planning procedures. Program planning procedures are generally concerned with selecting and justifying individual projects to be included in each fiscal years' construction program.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

With the exception of projects required to support new programs identified in the MEDIPP, little useful information is available for selecting projects and for justifying those decisions. As a result, trade-offs in resource allocation among VAMCs and among different types of projects at any one VAMC are often based on highly subjective evaluations where the greatest need exists. The susceptibility of these evaluations to factors other than need, make planning procedures inefficient and generally ineffective in allocating resources in the best way possible. Information that objectively identifies overall facility construction needs is of critical importance in improving construction program planning procedures.

The effects of weaknesses in construction planning procedures are magnified in other stages of the construction process:

- Design activities are affected because project scopes are not durable, changing up through the end of design.
- Funding strategies are affected because early cost estimates are highly inaccurate and fail to provide an adequate basis for requesting funding.
- Control procedures are affected by changing benchmarks for comparing actual quality, cost, and time.

Weaknesses in planning procedures result in inefficiencies throughout the HCF Construction Process.

A key requirment of proposed changes to the HCF Construction Process is to correct the lack of information available for construction planning. Steps taken to improve the quality and increase the amount of information on overall facility needs will result in more effective planning procedures and will improve the quality of construction project scopes and cost estimates.

(2) Project Planning and Design Procedures Are Hampered by a Lack of Useful Facility Design Standards

The desired degree of standardization or customization of outputs from the process is important in determining the kind of standards needed and how they will be used. In the HCF Construction Process, the terms standardization and customization refer to the degree to which common principles are used in planning and designing individual facilities. In a standard facility design process, the imposition of planning and design standards results in facilities that have similar characteristics. Standardized processes tend to be highly efficient and result in uniform levels of quality in facilities constructed, but they are not generally responsive to individual facility requirements. In a customized facility design process, individual user requirements are the basis for making planning and design decisions, with the result that facilities are tailor-made to user requirements. Customized processes respond well to user requirements, but tend to be labor-intensive and provide different levels of quality.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

The VA has attempted to define a middle ground between a standardized and a customized facility design process by developing standards for use as guidance during some aspects of design. Standards for space allocation and functional adjacencies provide an initial starting point for planning construction projects. In that sense, they are used to standardize the starting point for project planning but are not used to standardize the end result.* Technical standards, which provide construction details and material submission requirements, tend to be used more to standardize the end result; however, deviations are allowed. In theory, the VA approach has certain advantages. Since responsiveness to unique user requirements tends to be more critical during the development of functional requirements, this approach provides more flexibility during project planning, when flexibility is needed, and somewhat less during design, when flexibility is less important.

While the approach is sound, problems with current standards limit its effectiveness. The most critical problem is the lack of consistency between the use of standards to guide facility planning but not to guide VAMC operating modalities (i.e., procedures used in the VAMCs to carry out various functions). Steps have been taken to develop standards for facility planning, but standards for the VAMC operating modalities, upon which facility planning standards are based, have not been developed. In using current space planning criteria as a starting point for project planning, facility planners often find that VAMCs use very different approaches to carrying out their functions than those envisioned in the original development of the criteria. In those situations, the space planning criteria lose their usefulness as a point from which to start facility planning.

Contributing to this problem is the lack of explicit guidance on which operating modalities were originally assumed in the development of the planning criteria. Lack of explicit assumptions for operating modalities increases the confusion of users in determining the applicability of the standards to their operations. It also increases the difficulty in determining whether existing facility design standards reflect state-of-the-art or obsolete approaches to providing services. As a result, the usefulness of the standards as a starting point in planning construction projects is limited.

The third problem with current standards relates to their limited scope. The limitations are apparent in three areas:

- Standards are not available for all functions found in VAMCs.
- Standard room layouts are not available to provide a starting point for designing rooms that are built over and over in the VA.

* There has been some confusion concerning the purpose of these standards among project planning staff, who sometimes attempt full standardization with existing space criteria.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

- Current standards do not integrate space, functional, and equipment requirements for individual functions provided in VAMCs.

Because of such limitations, existing standards provide a starting point for guiding project planning decisions, but they do not provide a comprehensive approach for facility planning.

The results of these weaknesses are issues of contention between facility users and facility planners over the use of facility planning standards and a project planning process that has many of the disadvantages of both the customized and standardized approaches to facility design with few of the advantages of either. The effects are user dissatisfaction, excessive elapsed time, and excessive staff effort during construction project planning.

To improve the standards currently used for project planning is a key requirement of procedural changes in the HCF Construction Process. Improvements must address the deficiencies in the current standards as well as the overall approach to future facility design standard development.

(3) Adequate Tools Are Not Available for Controlling Performance in the HCF Construction Process

Systems used by managers to control quality, cost, and time were evaluated in Phase II of this study. The evaluation characterized two different types of control systems:

- Project-level control systems - Used by project managers to control quality, cost, and time on individual construction projects
- Process-level control systems - Used by middle and top management to control quality, cost, and time in the different construction programs (Major, Minor, NRM) and in the overall HCF Construction Process.

The major weakness identified in both types of control system was the lack of effective tools -- benchmarks and performance indicators --for controlling performance.

Control systems have, as their foundation, benchmarks that describe the desired level of performance to be achieved. Benchmarks in a project-level control system are derived from defined project plans and the project design, cost estimates, and completion schedules. Benchmarks in a process-level control system are derived from functional and technical standards, cost standards and goals for process time requirements. In both systems, benchmarks provide the baseline against which actual performance can be evaluated and adjusted, as necessary.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

In the HCF Construction Process, weaknesses identified in current planning procedures and functional standards have a major impact on the effectiveness of benchmarks as tools for controlling performance. Deficiencies in functional quality standards result in a lack of goals for determining the level of functional quality desired in the process. Poor planning procedures and poor project plans result in changing benchmarks on individual projects. Because the desired level of quality (defined in functional standards and project plans) is used to derive cost and time benchmarks, control for all aspects of performance is diminished by these weaknesses. Increased effort is required to evaluate process and project performance, and the results are less effective.

A second weakness in HCF Construction Process control systems is the lack of performance indicators for evaluating process or project performance. Performance indicators provide efficient mechanisms for summarizing performance in critical areas to assist managers in quickly identifying problems. For example, percentage cost of design errors provides an effective process-level tool for controlling technical quality; percentage deviation from space planning criteria provides an effective process-level tool for controlling functional quality (and cost). Without performance indicators, managers are forced to "micro-manage" performance to achieve effective controls.

Improvements in control systems are needed. Those improvements must focus on the benchmarks used to evaluate performance and on the indicators available for monitoring performance.

(4) Management Responsibilities Are Excessively Fragmented in the Current HCF Construction Process

During Phase II of this study, detailed analyses were made of the assignment of responsibilities for carrying out the HCF Construction Process. Those analyses focused on areas such as:

- Fragmentation and duplication of process functions
- Legitimacy of interests of those organizations involved in the process
- Efficiency of procedures used to carry out the process
- Capabilities of each organizational element tc carry out its assigned responsibilities.

Of the four areas, the level of fragementation of functional responsibility is the major organizational weakness in the current process.

In analyzing fragmentation of functional responsibilities, the relationships among functions performed in the process were defined based on a functional classification matrix. Four major functional

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

areas were identified: planning, execution, control, and support. Functional responsibilities of each of the organizational elements involved in the process were classified in these four functional areas to identify where there was:

- Overlapping responsibility - Where two or more organizations perform identical functions although work assignments may vary by project type, geographical area, or other factors
- Split responsibility - Where two or more organizations have responsibility for sequential activities within one functional area.

The areas in which overlapping or split responsibility were identified were compared with areas in which roles and responsibilities were unclear and accountability problems had been found. Excessive fragmentation was thus identified where both sets of conditions were found.

The analysis found excessive fragmentation of responsibilities primarily in the current assignments for planning and control, two critical process management functions. Fragmentation in these areas has been purposely fostered in the current process as an overall process "check and balance." The assignment of planning and control responsibilities to both O/C and DM&S allows O/C to maintain an independent role in determining the need while also providing support to DM&S.

Specific areas of fragmentation identified in O/C and DM&S planning and control responsibilities are as follows:

- Construction program planning responsibility is split between DM&S (responsible for selecting projects) and O/C (responsible for budget development).
- Project planning responsibilities are split between DM&S (responsible for data package development) and O/C (responsible for space programming).
- Fund control responsibilities are split between DM&S (responsible for NRM projects) and O/C (responsible for Major and Minor Construction).
- Process control responsibilities overlap between DM&S (Major and Minor Construction, NRM) and O/C (Major and Minor Construction).

As a result of these split and overlapping assignments, both organizations have legitimate interests in process management decisionmaking.

**Figure II.3: Key Effects of Weaknesses in VA's Construction Process** (Continued)

While this alignment of responsibilites is effective in providing an independent check on the process, it results in a high degree of confusion over roles and responsibilities. This is most evident during project planning site visits, where representatives from O/C and DM&S have similar management roles. Although specific procedures have been developed to clarify roles and responsibilities, the overlap that occurs in practice results in confusion among project development team members as well as with VAMC staff. Confusion is also evident in responsibilities for controlling the Minor Construction process, where both O/C and DM&S have legitimate control interests.

In addition to confusion over roles and responsibilities, the current O/C-DM&S alignment results in a loss of accountability for performance of the process. Both O/C and DM&S are responsible for the ultimate quality of project planning documents (e.g., information contained in the current project submission) and also for performance in completing APF projects through preliminary plans. Thus, there is no one organization responsible for the planning phase of the process, and it is difficult to hold specific organizational elements responsible for performance.

Overall process performance is negatively affected by this fragmentation, the confusion over roles and responsibilities, and the lack of accountability that results:

- Staff effort is increased because of duplicative efforts and coordination requirements in areas where fragmentation exists.
- Elapsed time for completing process activities is increased because of time required to coordinate and because no one organization can be held responsible for performance.

These disadvantages offset the increased control over the HCF Construction Process provided by the current split in responsibility for managing the process.

Changes in these responsibility assignments are needed to improve the efficiency and effectiveness of the process. Fragmentation can be reduced by increasing the level of responsibility of either organization for managing the process. Increasing the responsibility in DM&S will require other steps to ensure adequate oversight from outside the process. Increased responsibility in O/C will require other steps to ensure that the process is responsive to DM&S needs.

* * * * *

The ultimate goal of changes to the process is to resolve performance problems. This can be accomplished by implementing proposals and recommendations to eliminate their causes.

# SysteMetrics Study of VA's New Patient Treatment File

Prior to the implementation of VA's Casemix-based Resource Allocation Methodology, the accuracy of the diagnoses and medical procedures recorded in VA's New Patient Treatment File (NPTF) had little effect on a hospital's budget; therefore, a hospital had little incentive to ensure the accuracy of the data recorded in the NPTF. Now, however, a large portion of a hospital's budget is determined by the number of weighted work units a hospital earns. Each diagnosis recorded in the NPTF carries a set number of units, thus it is in the hospital's budgetary interest to assure that it receives full credit for the total number of units it has earned.

Several VA studies prior to 1984 indicated that there were substantial errors in the diagnoses recorded in the PTF. (See chapter 2.) On the whole, these errors had the effect of costing hospitals money under VA's new Casemix-based Resource Allocation Methodology because the diagnoses reflected in the NPTF generally understated the total weighted work units earned. Incomplete information in the discharge summaries used to code information for the NPTF, as well as errors by the VA staff who coded the information, accounted for the majority of the errors found.

To determine how extensive the error rates in the NPTF were on a national basis and to identify potential means of improving the accuracy of the information which it contained, VA hired SysteMetrics to conduct a national study of the NPTF, using a national sample that would be a statistically valid representation of the entire NPTF. That study was completed in October 1985 and affirms the findings of VA's earlier studies. SysteMetrics concludes that the discrepancy rates in the NPTF are high enough to justify concern over their use in planning and resource allocation.

The NPTF resulted from three additions made to the old PTF beginning in fiscal year 1984: the ability to track bed section transfers, summary data to show the status of patients not discharged by the end of the fiscal year, and a nine-digit code for identifying the person or persons responsible for the patient.

## Purpose of SysteMetrics Study

Because of the increasing importance of the NPTF to VA management, VA commissioned the SysteMetrics study to look at the reliability of the NPTF with the express purpose of projecting the results to the entire system.

The SysteMetrics study's four main objectives were to

- review the structure and process of the NPTF information system,
- evaluate the accuracy and reliability of the file,
- assess the implications NPTF deficiencies may have for DRG resource allocation, and
- recommend strategies for improving the quality of the NPTF.

## Methodology

### VA Requirements

A major consideration for the study was that the results be projectable to the NPTF nationwide, since neither the Stranova nor the Lloyd studies addressed the PTF on a nationwide basis. There were also three other VA-specific requirements that drove the design of the sampling plan.

- The study should furnish valid national estimates of discrepancy rates in each of the primary strata of cases: the three bed sections (medical, surgical, and psychiatric) and the two classes of hospitals (affiliated with a medical school and nonaffiliated).
- Discrepancy rate estimates should have standard error rates of 1.5 percent or less.
- The data set should allow for analysis of diagnoses or conditions which have special implications for resource allocation and planning.

### The Sample Universe

The study's sample universe was to include all episodes of care recorded on the fiscal year 1984 NPTF, with three exceptions. First, 1-day kidney dialysis admissions and second, a small number of discharges which had not yet been recorded in the NPTF by mid-December 1984 were excluded. In addition, because including all episodes of care would have put undue burden on VAMCs to provide copies of records for patients with extremely long stays, the study was modified to exclude psychiatric episodes of care over 45 days in length. (Most of the longer stays were for psychiatric treatment.) A total of 999,533 discharges met these requirements. According to the 1984 VA Annual Report, there were a total of 1,290,029 patients treated during fiscal year 1984.

### Choosing the Special DRG Categories

There were three criteria used to identify DRG groupings with "special implications" for resource allocation:

- high cost per DRG (as measured by the weighted work units used in VA's DRG system),
- most common (as measured by number of discharges), and
- high total cost[1] (a product of the DRGs' work unit total, times the number of discharges).

In addition to the three criteria used in DRG selection, a fourth factor was used to help in selecting representative DRGs. SysteMetrics sought to choose DRG sets likely to include frequent errors in classification. The example used by SysteMetrics was that DRG 106 and DRG 107, both high cost per discharge DRGs, were also so closely related that frequent classification errors were highly likely. Both of these DRGs are coronary bypass surgery procedures. But DRG 106 included cardiac catheterization, while DRG 107 did not. Table III.1 summarizes the three DRG groups chosen and provides a description of each DRG, the reason chosen, and other information.

The table's data are taken from the SysteMetrics study, with the exception of the cost totals on the right side of the table, which we supplied.

[1]"Cost" as used here is misleading. One weighted work unit used in the VA system during the fiscal year 1986 budget process was valued at $29.82. Obtaining cost on a more meaningful basis requires multiplying SysteMetrics' cost by the per weighted work unit cost of $29.82.

**Table III.1: Sample DRGs**

| DRG | Description | Reason chosen | Number | Weighted work unit | Weighted unit total | Total cost $29.82 x weighted work unit total |
|---|---|---|---|---|---|---|
| 106 | Coronary bypass with cardiac catheter. | High cost | 1,374 | 516 | 708,984 | $21,141,902 |
| 107 | Coronary bypass without cardiac catheter. | High cost | 3,202 | 393 | 1,258,386 | 37,525,070 |
| 182 | Esophagitis, gastroenteritis and misc. digestive disorders age > 70 and/or complications/comorbidities. | Most common | 11,220 | 73 | 819,060 | 24,424,369 |
| 183 | Esophagitis, gastroenteritis, and misc. digestive disorders age 18-69 without complications/comorbidities. | Most common | 15,141 | 57 | 863,037 | 25,735,763 |
| 430 | Psychoses. | Total cost | 63,036 | 105 | 6,618,780 | 197,372,019 |
| 433 | Substance use and substance induced organic mental disorders. Left against medical advice. | Total cost | 16,999 | 70 | 1,189,930 | 35,483,712 |
| 436 | Alcohol dependence | Total cost | 17,695 | 79 | 1,397,905 | 41,685,527 |
| 438 | Alcohol and substance induced organic mental syndrome. | Total cost | 48,097 | 75 | 3,607,275 | 107,568,940 |
| | | | | | 16,463,357 | $490,937,302 |

Note. Fiscal year 1984 DRG information was not complete at the time the DRG groupings were chosen, so the choice was based on fiscal year 1983 data.

Source: A Study to Evaluate the Accuracy and Reliability of the VA's NPTF File: Final Report, SysteMetrics, October 7, 1985.

The sampling methodology produced lists of discharges from 160 of the 161 VAMCs. The study does not explain why the 161st VAMC did not have a list produced or even identify the VAMC in question. In addition to the required sample, the lists included replacement medical records if the original could not be found. Ninety-five percent of the primary medical records were received. If a primary record was not found, then the placement record was pulled from the same strata as the primary.

## Medical Record Review and Abstracting

SysteMetrics chose approximately 22 medical record professionals to perform the records review. Minimum requirements were that the individuals have certification as either an accredited record technician or registered record administrator and have 1 year of coding experience. Many of those chosen had worked for SysteMetrics previously. All of those chosen were tested, both prior to selection and after, and ranked as to their abilities. They were also trained in VA coding conventions and

in the protocols (procedures followed to turn narrative descriptions into appropriate codes) developed specifically for the study.

Of the 4,322 records reviewed, 80 percent were reviewed only once. The other 20 percent (868 records) were given two independent reviews as an inter- and intra-rates reliability assessment. Half of the 20 percent also were reviewed by the original reviewer a third time, but at least 1 month after the original review so that the reviewer would not be familiar with his or her original review of that record.

The records which were abstracted only once were compared with NPTF records to identify discrepant record pairs in need of adjudication. Reliability records (the 868 records abstracted two or three times) were compared with one another to identify those requiring adjudication. NPTF discrepant data elements that triggered an adjudication included the following: DXLS (primary diagnosis responsible for the longest length of stay in the hospital), DXLS DRG, principal diagnosis, and principal diagnosis DRG.[2]

SysteMetrics developed its own abstracting protocol using VA's abstracting guidelines found in VA Department of Medicine and Surgery Manual M-1: Part I, Medical Administration Activities, and Patient Treatment File Coding Instruction MP-6, Part XVI Supplement No. 4.1. In addition, SysteMetrics was required to develop supplementary abstracting and coding rules which were either not addressed or were not consistently addressed in the VA guidelines. VA guidelines created other areas of concern in developing the reabstracting protocols.[3]

## Adjudication Protocol

The adjudication process served two purposes. (Adjudication means the final arbitration of different codings of the same medical record.) The first was that the adjudicated medical record served as the standard against which the NPTF was evaluated. The adjudication was triggered, in this case, when the reabstract did not match the NPTF. SysteMetrics never identified who served as adjudicator(s) or how they were chosen. Since they have the pivotal role in establishing the standard used to evaluate the NPTF, this is critical information for evaluating the SysteMetrics study. The adjudicator first reviewed the questioned file independently, but also had the option of reviewing both of the other files

[2]Beginning with fiscal year 1985, the NPTF reports only DXLS DRGs.

[3]SysteMetrics, A Study to Evaluate the Accuracy and Reliability of the VA's NPTF File: Final Report, pages II-15-17.

for something he or she might have missed. SysteMetrics' objective was to create the most accurate standard using all available information.

The second purpose was to evaluate the study's abstracting reliability. A subsample of 853 records was reabstracted twice and a subsample of 371 records was reabstracted three times. If discrepancies occurred, they were adjudicated to create the standard. The correct standard was based on agreement of at least two abstracts or on the adjudication of at least two abstracts.

## Study Limitations

There are a number of limitations which need to be acknowledged when dealing with a study of this type. Most of the limitations are described in the SysteMetrics study.

SysteMetrics identified one limitation imposed by its study design; it visited only two VAMCs. Most of the information it uses to support conclusions on the organization of the NPTF from the VAMC standpoint comes from a questionnaire sent to all VAMCs. SysteMetrics states "the limited nature of our discussions with field personnel creates the potential for overlooking some aspect of structure and process that may contribute to errors in the NPTF."

The medical data used by SysteMetrics was based on 1984 NPTF information. The first year of the new NPTF format was 1984, which was also the first year of the DRG resource allocation system. These factors might conspire to give somewhat erroneous results when compared with current information. In addition, SysteMetrics surveyed all VAMCs in 1985; therefore, the survey responses might not fully represent the NPTF structure and process that produced the fiscal year 1984 data. The NPTF format is better understood by users now and it is likely that medical center personnel are now more aware of the DRG resource allocation system and the important role played by the NPTF.

Another limitation is the subjectivity of the determinations of the diagnoses and of the coding of the diagnoses. The medical record may reflect the conflicting judgments of physicians with diverse training, knowledge, and experience. Many times in coding medical records, the coders are required to use professional judgment because the ICD-9-CM coding system is not comprehensive and there are deficiencies which characterize this classification system; criteria for including diagnoses and procedures are sometimes vague; and medical record documents contain inconsistent, incomplete, nonspecific, and inaccurate data. Each time

professional judgment, either by a physician or a coder, is used, there is the potential for differences appearing in the medical record.

According to SysteMetrics, VA has imposed some major limitations to successful diagnosis and coding. VA's Central Office is responsible for developing and distributing coding guidelines; however, it allows considerable variation in the coding approach taken by individual hospitals and even encourages considerable medical center autonomy regarding NPTF data collection and recording. This latitude is particularly troublesome under a DRG resource allocation system where it is assumed that all facilities are recording the data in a consistent manner. VA's main source for guidance in coding, M-1, Part I, Change 179, contains gaps in coding information. Very specific about coding special status admissions, M-1 places little emphasis on general coding issues. VA medical centers may use as many as six other coding guides for training and in actual practice, but the Central Office does not specify which is preferred or how conflicts should be handled. Another problem is that physicians and coders are required to use different systems of terminology for diagnoses and procedures. In addition, many VAMCs don't request clarification of coding problems from the Central Office but rely on one another for advice.

Finally, midyear coding changes and VA coding modifications have also added to coding problems. Midyear changes make it difficult to interpret the data for the year in which the change was made. VA coding modification in response to research efforts, congressional inquiry, and the desire to eliminate nonspecific codes has increased the complexity of coding and created additional opportunities for error. VA has modified many ICD-9-CM codes by adding extra digits, changing their meaning, creating new codes for procedures commonly performed together, and otherwise altering the classification system. For example, the VA expanded four-digit procedure codes to five digits in order to capture two procedures with one code. Because of these problems, covered in more detail in the study, the NPTF suffers from the lack of a comprehensive, consistent, and unambiguous set of VA-specific guidelines.

## Major Findings

The SysteMetrics study concluded that the discrepancy rates in the NPTF are high enough to justify concern over their use in planning and resource allocation. (See table III.2.) The overall rate for discrepant DXLS DRG (the diagnosis responsible for the major length of stay in the hospital) was 35.3 percent, a figure much higher than the 19 percent found in the Lloyd study. The DXLS discrepancy rate for five-digit comparisons

is 42 percent—again considerably higher than the 30 percent estimated in the Stranova Study. SysteMetrics believes that its study results came out generally higher than those of the VA in-house studies because it used totally independent abstractors. This could account for the difference because both the Stranova and Lloyd studies used individuals who were familiar with VA-prepared medical records.

One of the significant findings was that the discrepancy rate for principal diagnosis is remarkably similar to those for DXLS. SysteMetrics finds this to be very encouraging in light of the fact that VA dropped principal diagnosis from the NPTF.

**Table III.2: Percent of NPTF Records Discrepant With SysteMetrics Abstracts**

| | Raw N | Weighted N | DXLS DRG | DXLS (3 Digit) | DXLS (4 Digit) | DXLS (5 Digit)[a] |
|---|---|---|---|---|---|---|
| **Bed Section** | | | | | | |
| Medical | 1,639 | 515,914 | 37.8 | 32.2 | 40.5 | 42.2 |
| Surgical | 1,567 | 321,154 | 31.4 | 24.5 | 34.7 | 37.7 |
| Psychiatric | 1,116 | 162,062 | 35.2 | 31.1 | 40.1 | 49.8 |
| **Affiliation Status** | | | | | | |
| Affiliated | 3,139 | 879,812 | 35.1 | 29.4 | 38.5 | 41.7 |
| Nonaffiliated | 1,183 | 119,319 | 36.4 | 30.9 | 39.2 | 44.3 |
| **NPTF DRG Category** | | | | | | |
| 106-107 | 369 | 4,325 | 19.1 | 22.9 | 48.4 | 48.4 |
| 182-183 | 394 | 26,848 | 30.6 | 25.6 | 28.0 | 28.4 |
| 430/433/436/438 | 897 | 138,759 | 35.4 | 30.8 | 43.2 | 54.7 |
| Balance | 2,662 | 829,200 | 35.5 | 29.5 | 38.1 | 40.3 |
| **Total** | **4,322** | **999,132** | **35.3** | **29.6** | **38.6** | **42.0** |

[a]A fifth digit discrepancy between the NPTF and a SysteMetrics abstract did not require that the record be adjudicated. However, when the record was adjudicated, it was adjudicated through the fifth digit.

Source: A Study to Evaluate the Accuracy and Reliability of the VA's NPTF File: Final Report, SysteMetrics, October 7, 1985.

Overall, the discrepancy rates discussed by SysteMetrics are generally similar to those reported by the private sector in three abstracting studies performed by the Institute of Medicine using 1970s data. SysteMetrics draws the conclusion that private sector information has greatly improved since these studies because private sector hospitals have long been aware that high quality discharge abstract data are essential in determining the levels of Medicare reimbursement. Although not stated explicitly, the SysteMetrics results imply that VA's data

quality may also improve now that the data in the NPTF are being used for allocating a major portion of each hospital's operating budget.

## Major Findings and Their Implications for DRG-Based Resource Allocation

Because errors in the diagnosis recorded in the NPTF can now have a major effect on a hospital's operating budget, SysteMetrics analyzed the potential impact of the discrepancies it found on VA's new Resource Allocation Methodology, which bases a growing portion of each hospital's operating budget on its workload as measured by the DRGs recorded in the NPTF. SysteMetrics did not look at the effect on individual hospitals, but on total resource allocation between bed sections for all VA hospitals. One way VA currently builds its overall medical care budget is by bed sections.

SysteMetrics found an increase of 4.53 percent in the total number of weighted work units for VA hospitals as a whole. The significance of the number of units on a national basis is that it determines, along with the systemwide casemix expenditures, the value of one weighted work unit. For instance, for fiscal year 1984, VA calculated that there was a total of 90,394,204 units expended throughout the entire system. VA also calculated $2,695,133,490 casemix expenditures. Dividing the total units into total case mix expenditures gives the value of one unit, or $29.82. According to SysteMetrics, the total number of weighted work units should have been increased by 4.53 percent, or to a total figure of 94,489,061. This figure yields a unit cost of $28.52—a significant change—but more meaningful when applied on an individual VAMC basis. The casemix system as a whole is a break-even system, but it is the changes that take place at each hospital that show the significance of how VA is now allocating funds.

The reported figure of a 4.53-percent increase may be inaccurate. SysteMetrics coded diagnoses in the psychiatric bed section area one way, but later found out that VA coders would have coded it differently. In this instance, instead of a psychiatric bed section increase in weighted work units of 14.82 percent as reported using SysteMetrics' coding, it would have meant a 4-percent decrease in units. Instead of the 4.53-percent increase in units as reported by SysteMetrics, there would have been an increase of only 1.7 percent. Even though SysteMetrics reports the change to total psychiatric units, it did not show the change to total units.

SysteMetrics also reports the implication of discrepancies on its three sets of DRGs, but again it shows that the difference between its coding

and that done by VA would have been significant. The study could be useful, however, if VA uses the information SysteMetrics gathered on a VAMC-basis to develop its knowledge of which hospitals are learning to work with the new resource allocation system and which are not and to see if this is consistent with the results of the 1986 budget process.

## Causes of Discrepancies in the NPTF

One of the most significant findings was that 66 percent of all medical records suffered from inadequate documentation. VA guidelines require the physician to select and document the DXLS. In 38 percent of the cases this was not done, thereby requiring the medical record technicians to use their judgment in selecting the DXLS. In 9 percent of the cases where a DXLS was selected, it did not meet the defined requirements. Psychiatry records had a DXLS documentation problem in 61 percent of the cases, compared with 66 percent for medicine, and 68 percent for surgery.

Record quality with respect to documenting principal diagnosis (not collected by VA since 1984) was very similar to that for the DXLS, with one major exception: 53 percent of the records reviewed did not include a designation for principal diagnosis, compared with 38 percent for the DXLS.

DXLS discrepancies occurred in 53 percent of the NPTF records in which the physicians failed to designate a valid DXLS. It is clear that the quality of medical record documentation exercises a major influence on diagnosis discrepancy rates.

The two major players in the determination of diagnoses, the physician and the coder, were responsible for discrepancies in the DXLS 47.8 percent and 75.4 percent of the time, respectively, and for discrepancies in the principal diagnosis 51.3 percent and 76.3 percent of the time, respectively. (Categories do not total 100 percent because they are not mutually exclusive. One medical record might have more than one reason for being discrepant.) SysteMetrics has a caveat in its explanation of results because its coding method did not pattern VA's. If VA coding is used, the physician is responsible for 44.7 percent of the discrepancies in the DXLS, while the coder is responsible for 70.2 percent. For principal diagnosis using VA coding, the physician is responsible for 47.4 percent and the coder is responsible for 70.5 percent of the discrepancies. (See table III.3.)

**Table III.3: Percent Distribution of Problems Identified by Adjudicator by Major Categories[a]**

| | DXLS[b] | Principal DX[b] | Other DX | Procedure |
|---|---|---|---|---|
| Physician-related | 47.8 | 51.3 | 14.4 | 26.0 |
| Judgment | 1.9 | 3.7 | 2.0 | 0.8 |
| Parameter | 1.0 | 1.1 | NA | NA |
| Coder-related | 75.4 | 76.3 | 90.4 | 89.4 |
| Clerical | 0.4 | 0.6 | 0.5 | 0.3 |
| Other | 21.7 | 19.8 | 8.0 | 9.7 |

[a]These problem categories are not mutually exclusive, therefore percentages do not total 100.

[b]Excludes admissions for alcohol rehabilitation.

Source: A Study to Evaluate the Accuracy and Reliability of the VA's NPTF File: Final Report, SysteMetrics, October 7, 1985.

SysteMetrics noted two other problems which could cause significant coding errors. The first is that VA has no consistent systemwide coding guidelines. The second, as reported in other VA studies, is that VA wages for medical record technicians are not commensurate with salaries paid in the private sector. This finding, taken together with the study finding that most VA record technicians are not accredited, may indicate that the salaries paid by VA are not sufficient for it to compete successfully with private sector hospitals in recruiting medical records professionals.

## Recommendations

SysteMetrics made three recommendations for improving the NPTF system. They fall into the following broad categories: developing a more uniform medical record system, upgrading medical records personnel, and involving physicians.

In regard to developing a more uniform medical record system, SysteMetrics believes VA should

- furnish a list of complications and comorbidities and instruct records personnel to include them in the NPTF as they appear in patients' records;
- furnish a comprehensive list of procedures that must be collected, including operating room procedures which affect DRG assignment;
- improve its guidelines by defining a hierarchy of medical record source documents to help resolve conflicts; and
- modify the Austin Data Processing Center's preprocessor to read all NPTF diagnoses and procedures in the groups and allow 30 working days for the NPTF end-of-year closeout.

To upgrade medical records personnel, SysteMetrics believes VA should

- recruit more personnel from the ranks of credentialed medical records professionals,
- simplify the coders' tasks and furnish automated edit checks on the NPTF data entered, and
- develop the abilities of current staff through in-service training and continuing education courses.

To involve physicians more directly, SysteMetrics believes VA should

- hold periodic seminars for new staff concerning the relationships between NPTF data quality, DRG classification, and VAMC budgets;
- develop or purchase service specific handbooks describing terminology and record narrative and their impact on DRG assignment;
- establish at each medical service a liaison who will work with records technicians; and
- change its coding guidelines to encourage physicians to use ICD-9-CM terminology.

# VA Management Information System Projects

The VA Management Information System Task Force, appointed by the Chief Medical Director, was organized to plan the development of a comprehensive management information system for the Department of Medicine and Surgery. Both the Hines/Boston project and the Brockton/West Roxbury project (described below) were begun at the request of the task force. The Long Beach project (described below) was initiated by the Long Beach, California, VAMC.

## Long Beach Project

The Long Beach VAMC, along with the Information Systems Center (ISC) in San Francisco, California, and the Health Services Research and Development Center (HSR&D) in Ann Arbor, Michigan, is involved in a joint project to develop a hospital-based management information system. The project began in January 1984 and has three major objectives:

(1) the development of a patient-specific cost accounting system,

(2) the development of an outpatient visit cost classification system, and

(3) the automation of all management and statistical information input made at the grass roots level.

The development of the patient-specific cost accounting system is in three stages. The first stage is the recognition of all direct patient care areas of the hospital and the allocation of all actual direct and indirect resources to those areas. The actual costs will be identified by

- episode of patient care,
- bed section,
- ward,
- outpatient clinic,
- service, and
- hospital.

Services in the hospital have been grouped into three categories: (1) direct patient care services (by ward/clinic), (2) ancillary services (for example, lab, radiology, nuclear medicine), and (3) overhead or indirect services (for example, fiscal, building management, or supply). In general, the planned methods of apportionment are as follows:

- Direct care personnel hours will be allocated using a time allocation sheet.

- The total ward cost for each inpatient ward will be divided by total patient days to arrive at a ward cost per patient day.
- The total cost of an outpatient clinic divided by the number of patients seen in that time period will give an average outpatient cost by clinic.
- Ancillary areas will be costed separately to get a per test, per x-ray, or per medication cost.
- A subaccount system is being explored to properly assign supply costs.

The project objective is to tie the clinical and informational data stored within the computer to the cost information, in order to reflect an entire episode of care both clinically and financially. All of the cost components discussed above could be collected by patient, DRG, ward, clinic, service, or hospital, with each component identified and costed.

A secondary objective is to establish standard costs. The plan is to utilize time studies and analyses of job performance to establish performance and staffing standards. This information would then be used by management to compare actual personnel levels, supply numbers, and dollars with those at an expected efficiency level. Problem areas could then be targeted for analysis.

The Long Beach VAMC plans to arrive at an outpatient cost classification system by identifying the number and type of encounters and the resources expended during an encounter. An encounter is an episode of care for an outpatient. An encounter form has been developed to identify this information. The data collected on this form are being combined with socio-demographic and other data in the central hospital computer system to form a complete data base and to develop an outpatient classification model. The outpatient classification model was completed in December 1985.

## Hines/Boston Project

A subcommittee of the Management Information System Task Force was assigned to develop a plan for a medical management information system. In January 1984, the Hines, Illinois, VAMC started developing the project; the project is also being developed at the Boston, Massachusetts, VAMC. This project is composed of three phases. Phase I involves the development of a clinical resource tracking system for ongoing monitoring of clinical management activities. Phase I activities, which have been completed, include:

- identifying the data required, by asking users what information they need;

- developing a dictionary of data definitions;
- specifying preliminary reports;
- reviewing preliminary reports by system users;
- developing a data-gathering system;
- examining existing data;
- generating preliminary casemix reports using available data-processing software;
- developing physician-specified patterns of care; and
- initiating the project at the Boston VAMC.

Physician committees at the Boston and Hines hospitals are working on developing patterns of care within the framework of the DRG classification system. The patterns of care attempt to

- identify those factors which distinguish diagnostic categories,
- define those diagnostic and therapeutic steps appropriate for patients with a given diagnosis, and
- identify those complications or problems likely to occur for a given diagnosis.

Patterns of care are being developed within the framework of the DRG classification system.

Phase II of the project concentrates on integrating the cost data into the system to assist with budgeting, resource management, and analyses such as

- ancillary service utilization by patient groups, as defined by DRG, patient demographics, clinical service, or individual physician;
- comparison of ancillary utilization by patients within a selected DRG, service, or program, using utilization review data from other hospitals; and
- analysis of hospital direct and indirect costs per case for patients in selected groups.

One of the objectives of phase II is to develop data on the cost of treating a patient, average actual cost per DRG, and cost per procedure. The project software was completed in November 1985. The Hospital Research and Educational Trust, a subsidiary of the American Hospital Association, donated a casemix management information system software package to the project in order to assist VA in developing its own management system.

Phase III incorporates staffing levels and other productivity measures into the system. The project plan is to integrate these productivity measures to enable the establishment of productivity targets for all services. This will allow

- analysis of changes in workload requirements attributable to casemix and
- hard copy departmental management reports and on-line interactive access for ad hoc analysis.

The project includes the capability for a "modeling function." This capability could provide projections of the clinical and cost implications of various planning and budgeting alternatives.

The work on the three phases was completed in November 1985. The present project work is taking place at the Hines, Illinois, VAMC and primarily includes testing the project software.

## Brockton/West Roxbury Project

The New England Medical Center model is currently being used at several private hospitals such as the Georgetown University Medical Center in addition to the New England Medical Center. An evaluation team from the New England Medical Center visited the Brockton/West Roxbury VAMC on December 18 and 19, 1984, to evaluate the applicability of a standard product costing model, such as the Center's model, to VA. The results of that study were that VA's current systems could support the implementation of such a model. However, the portion of the Center's, or any similar model, that relies on clinical information could not be fully implemented until VA's DHCP (Decentralized Hospital Computer Program) is fully operational in fiscal year 1989.

The Center's model views the resource inputs to the treatment of a patient, such as diagnostic tests, surgery, and medicines, as intermediate products. The final product is a treated patient from the hospital. The total of the intermediate products provided the patient forms both the clinical and financial record of that patient. The Center's model attempts to control treatment costs by controlling the utilization and costs of intermediate products used in patient care. It provides doctors with reports on the quantity and type of intermediate products used in patient care and holds them responsible for these, since they control the patients' treatment. It provides department heads with reports on the costs of individual intermediate products whose unit costs they are responsible for.

The model breaks down the costs of intermediate care products into nine variables:

- variable labor,
- variable supplies,
- variable other,
- fixed direct labor,
- fixed direct equipment,
- fixed direct facilities,
- fixed direct other,
- variable indirect, and
- fixed direct.

The model uses standard costs as the basis for measuring variances. Reports indicate for which of the nine variables there are variances, but not the cause of the variance, which must be determined by the manager. The model utilizes a flexible budget to adjust for variances beyond the control of the department manager. An example of this is the quantity and type of tests performed that are controlled by the ordering physicians.

Standards are established using a combination of relative values, as determined by professional standards and engineered standards based on actual time and motion studies for performing particular procedures. The model uses engineered studies only for those intermediate products that produce both the greatest quantity and cost for each department.

The Center's model also has a "modeling" capability which allows "what if" scenarios to be analyzed in planning and in budget execution. The Center uses this capability to examine the clinical and cost implications of various planning, pricing, and budgeting alternatives.

The Brockton/West Roxbury project proposes to test a standard product costing model, such as the New England Medical Center model, and assess its usefulness for hospital management, cost control, utilization review, and quality assurance.

# Study of the Delegation of Authority to Hospital Directors for Nursing Home Care Design and Construction

In a 1981 House-Senate Conference Report (H.R. 222, 97th Congress, for Public Law 97-101), VA was directed to conduct a pilot program to test the advantages and disadvantages of delegating authority for the design and construction of three nursing home care unit projects. In the fiscal year 1982 Department of Housing and Urban Development-Independent Agencies Appropriations Bill, the House recommended that the hospital directors at the medical centers in Ann Arbor, Michigan; Fresno, California; and Tampa, Florida, be given complete discretion to design and/or supervise the construction of nursing home care unit projects.

At VA's request, Booz, Allen & Hamilton conducted a study to assess the effects of the first delegation of authority for nursing home care unit design and construction to directors at three VAMCs. This study,[1] issued on April 26, 1985, had four objectives.

- Contrast and compare the three specific, delegated nursing home care unit projects with seven comparable nondelegated nursing home care unit projects from a period prior to delegation but during the same era in terms of time, cost, and quality of the construction project.
- Assess and evaluate the impact of the delegated and nondelegated approaches on station resources (for example, administrative costs and personnel) and on ongoing facility maintenance and capital improvement activities.
- Assess and evaluate the strengths and weaknesses of the three specific delegations from the perspectives and interests of the affected VAMCs and affected Central Office elements (that is, the Office of Construction, the Chief Medical Director, and the Office of Budget and Finance (Controller)).
- Assess and evaluate the strengths and weaknesses of the specific delegation parameters and guidelines for the three delegated nursing home care unit projects in terms of the following factors: sufficiency of Central Office oversight; compliance with prescribed agency standards, statutes, and regulations; adherence to the delegation directives; and sufficiency of sound administrative practice and quality of the final product.

As mentioned in chapter 5 of this report, our review concentrated on the planning and programming phases of the VA major construction process. We did not examine the effects of the delegation of construction

[1]Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Modification to Assess Delegation of Authority to Hospital Directors for Administration of Nursing Home Care Unit (NHCU) Construction Project at the VAMCs in Ann Arbor, MI, Fresno, CA, and Tampa, FL.

authority to VAMC directors. However, through an examination of the Booz, Allen & Hamilton workpapers and interviews with VA officials, we determined that Booz, Allen's study of the delegation of authority met generally accepted government auditing standards.

## Background

Although the Congress intended that the VAMC director be responsible for the entire construction process, the facts surrounding the projects selected did not permit it. The three projects chosen were already in various stages of construction at the time of the House recommendations. Since preliminary plans had been completed for each project and the Office of Construction either had selected or was in the process of selecting an architectural/engineering firm to develop working drawings for Fresno and Tampa, the VAMC directors' authority was extended only through the remaining activities. For Fresno and Tampa, the delegation of authority started with the development of working drawings and for Ann Arbor it began with the selection of an architectural/engineering firm to develop working drawings.

Through interviews with staff members of both the House and the Senate appropriation committees that deal with VA, Booz, Allen & Hamilton discerned the following objectives for the delegation of authority:

- Improve the efficiency of the health care facility construction process.
- Decrease the total elapsed time from the definition and validation of need through physical facility construction.
- Increase the degree of user involvement and user satisfaction with the final product.
- Ensure on-time delivery within established budget constraints.

These objectives were used to form the basis upon which the study was designed. To measure the differences in achievement of these objectives, a comparison was made among nursing home care unit projects completed prior to delegation, those being constructed during the same time period, and the three delegated projects.

## Methodology

In addition to the three delegated construction projects, Booz, Allen & Hamilton reviewed seven nondelegated nursing home care unit projects. Four of the projects were chosen based upon similarity of project characteristics, construction period, and procurement procedures. The remaining three projects were included to lend a historical context to the

analysis since they were completed prior to delegation. Table V.1 highlights key characteristics of the 10 projects.

**Table V.1: Key Characteristics of 10 Study Projects**

| Medical center | Construction award date | Completion date[a] | Number of beds |
|---|---|---|---|
| **Delegated projects** | | | |
| Ann Arbor, Michigan | 12/82 | 6/84 | 120 |
| Fresno, California | 9/83 | 2/85 | 60 |
| Tampa, Florida | 12/82 | 10/84 | 120 |
| **Nondelegated projects** | | | |
| Atlanta, Georgia | 6/80 | 5/82 | 120 |
| Bronx, New York | 12/82 | 5/85 | 120 |
| Columbia, South Carolina | 9/77 | 11/79 | 120 |
| Hines, Illinois #1 | 1/81 | 9/82 | 120 |
| Hines, Illinois #2 | 6/84 | 6/86 | 120 |
| Lake City, Florida | 2/83 | 12/84 | 120 |
| Marion, Illinois | 5/83 | 6/85 | 60 |

[a]Estimated date for projects not yet completed at time of Booz, Allen & Hamilton's study.

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Modification to Assess Delegation of Authority to Hospital Directors for Administration of Nursing Home Care Unit (NHCU) Construction Project at the VAMCs in Ann Arbor, MI, Fresno, CA, and Tampa, FL.

Booz, Allen & Hamilton used three methods to gather information: interviews, data collection forms, and reviews of files. This information was used to assess the delegation approach and the extent to which it achieved desired objectives. Interviews were held with VA Central Office (specifically the Office of Construction, including the Budget Service, and DMAS) and VAMC officials.

Data collection forms were designed to standardize and structure data gathered from project files, interviews, and various historical performance indicators so that information received from the individual facilities would be comparable. In addition Booz, Allen & Hamilton developed a "Building Systems Evaluation Form" and a "User Perception Form" to assess the quality of construction and user satisfaction.

Booz, Allen & Hamilton reviewed the Office of Construction and DMAS files on each project. It focused on identifying explanatory information that described key events in the project. Information was also collected on project costs, schedule, elapsed time, and site inspections.

## Findings

Table V.2 summarizes Booz, Allen & Hamilton's assessment of the strengths and weaknesses of the delegation approach as it pertains to the projects evaluated for the study.

**Table V.2: Strengths and Weaknesses of the Delegation Approach as Concluded From a Review of 10 Nursing Home Care Projects**

| Strengths | Weaknesses |
|---|---|
| Increased user involvement in the construction process. Improved capability to follow through on problems. Reduced elapsed time for completing working drawings, contract award, and construction. | The point of delegation within the construction process (i.e., completion of working drawings and construction) for the three nursing home care unit projects is inconsistent with stated objectives of this form of authority. |
| Greater user control over process. | Stations do not have ability to perform the same level of technical review as VA's Central Office.<br>Stations do not have adequate staff in supply and engineering services to manage delegated projects effectively.<br>Delegation of major construction projects represents a potential risk. |

Source: Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities: Modification to Assess Delegation of Authority to Hospital Directors for Administration of Nursing Home Care Unit (NHCU) Construction Project at the VAMCs in Ann Arbor, MI, Fresno, CA, and Tampa, FL.

Booz, Allen & Hamilton found that the time performance of delegated projects was better than that of nondelegated projects. The time savings were attributed to four elements: less formalized procedures for accomplishment of activities, fewer required approvals and concurrences, closer proximity to the decisionmaker, and luck.

The delegated approach was determined to greatly increase involvement in the construction process. Booz, Allen & Hamilton believes that this involvement took the form of "pride of ownership" and a corresponding dedication to a successful outcome. However, it found no difference between the delegated and nondelegated projects in terms of satisfaction with the final product.

Booz, Allen & Hamilton noted that the construction cost performance of the delegated projects was similar to that of nondelegated projects. However, one component of cost in which Booz, Allen & Hamilton did find differences was the use of contingency funds. The consultants found that the use of contingency funds by nondelegated projects remained below 2 percent of the contract amount for each project, while all the delegated projects had exceeded 2 percent, and both the Fresno and Tampa projects had exceeded the 5 percent contingency limit.

In terms of the quality of construction, Booz, Allen & Hamilton concluded that all 10 projects were generally acceptable in terms of VA, contractor, and architectural/engineering performance.

## Conclusions

Booz, Allen & Hamilton suggested selection criteria that should be followed to evaluate projects being considered for delegation. Among the criteria are to have a VAMC director who is willing to be responsible for a delegated major construction project and to ensure that the VAMC chief engineer is experienced in the construction of projects of similar complexity, size, and scope.

Booz, Allen & Hamilton believes that if the current level of station input is maintained and the recommendations of any applicable alternatives presented in its major study (Comprehensive Study of the VA's Organization and Procedures for Constructing Health Care Facilities which is discussed in appendix II) are implemented, delegation of construction projects may not be necessary in the future.

# Prior Studies and Actions To Improve the VA Construction Process

This appendix contains an annotated listing of studies and actions taken by various parties to improve the VA construction process.

## Executive Branch Efforts

The amount of funds VA can request for replacement and modernization projects in any fiscal year is limited by the Office of Management and Budget. Concerned that VA requests for design funds in one year lead to significantly higher requests for construction funds the following year, OMB has attempted to limit VA budget requests to two replacement and modernization projects in fiscal year 1986 and later years.[1]

## Grace Commission

On June 30, 1982, President Reagan established the President's Private Sector Survey on Cost Control, better known as the Grace Commission. The Commission's mandate was to identify opportunities for increased efficiency and reduced costs in federal government operations. Several of the Commission's recommendations were directed at the VA construction program. The Commission urged VA to limit its construction of new health care facilities and consider ways that the private sector could manage this activity.

In its Report on Federal Hospital Management, the Grace Commission addressed two VA construction program subject areas:

- Can the higher cost of constructing VA hospitals and nursing homes be reduced so that the costs begin to approximate the construction costs of well-managed, private, multihospital and nursing home systems? (Hospital Issue #5.)
- Can the organizational structure of the VA hospital system be modified to give hospital directors much greater control over facility planning, budgeting, and staff? (Hospital Issue #6.)

In another report entitled Privatization, the Commission addressed the question: Do privatization opportunities exist within the VA which could reduce expenditures and improve the health care benefits delivered to veterans? (Privatization Issue #4.)

[1]Design funds are used to develop working drawings for construction projects before they are approved for final funding by the Congress. In general, design funds requested in one fiscal year will be used in the working drawing development of projects to be requested in the succeeding fiscal year.

## VA Health Care Facility Construction

Under Hospital Issue #5, the Grace Commission recommended that VA stop constructing nursing home care facilities. The Commission believed that VA could meet future needs for nursing home care beds by (1) converting available and underused acute-care (short-term) beds to extended care use and (2) increasing the number of contract nursing home care beds by entering into long-term contracts with private sector nursing home care operators to design, build, and operate nursing homes in the locations where VA needs such beds. The Commission further recommended that the Office of Construction should be completely reorganized with a reduction in staff size from the present 800 employees to 200. It also recommended that VA should contract with a medical care consulting group to establish sound construction planning criteria which point out the needs of veterans as an integral part of an overall planning system of DM&S. The Commission estimated that implementation of its recommendations would result in a 3-year savings of $1,342.3 million.

## Control Over Facility Planning, Budgeting, and Staff

Under Hospital Issue #6 the Grace Commission recommended that VA (1) decentralize control over several hospital management functions, including day-to-day operations, planning, and budgeting; (2) increase hospital directors' authority and provide them with incentives; and (3) propose legislation to eliminate congressional constraints on VA hospitals, for example, number of operating beds and number of nursing homes.

The Commission did not estimate the savings resulting from recommendations in this issue area. It concluded that savings it had established in six other issues pertaining to VA hospital management were, to some extent, dependent upon providing incentives to VA medical center directors to render more cost-effective care.

## Privatization of VA Hospital Management

For Privatization Issue #4, the Grace Commission recommended that VA phase out its construction of hospitals, not construct any nursing homes not already under contract, contract for private management of three of its hospitals as a trial, and subject future facilities to a certificate-of-need process.

It concluded that (1) use of a private sector construction manager would produce savings in VA construction projects; (2) long-term contracts with private nursing home operators would result in nursing homes being built and operated for VA patients, with appropriate VA quality assurance safeguards, at one-third to one-fifth of VA's construction costs and at

one-half of VA's operating costs; (3) private sector expertise would improve VA's management information systems, forecasting methods, resource allocation processes, and sharing of high-cost services with non-VA hospitals; and (4) these efficiencies would improve the health care benefits delivered to veterans.

The Grace Commission estimated that adoption of a limited trial privatization program could save about $1.4 billion over a 3-year period. If fully implemented within the entire VA system on a permanent basis, the Commission believed its recommendations could save an estimated $13.2 billion over 20 years in the cost of constructing hospitals, $474 million over 5 years in constructing nursing home care units, and $2.2 billion annually in the operating costs of hospitals and nursing home care units.

## Our Views on Grace Commission Recommendations

In our two-volume report titled Compendium of GAO's Views on the Cost Saving Proposals of the Grace Commission (GAO/OCG-85-1, February 19, 1985), we expressed our views on 581 of the 784 issues presented by the Commission. The following is a synopsis of our views on the preceding recommendations.

(1) Hospital Issue #5: VA Health Care Facility Construction: We agree with the Grace Commission's recommendation that VA should pursue alternatives to building more nursing homes; however, we disagree with its recommendation that VA stop constructing new nursing homes. The Commission assumed that VA could meet its nursing home bed needs by either converting underused hospital beds or increasing its use of contract nursing home beds. At least two factors may limit VA's ability to use these options. Underused hospital beds may not be economically converted to nursing home beds because of engineering problems or functional limitations. For example, there may not be enough underused hospital beds in one location to form a nursing home unit. In addition, state cost containment efforts may limit the availability of contract nursing home care beds.

We also disagree with the Commission's recommendations that VA contract with a medical care consulting group to develop sound construction criteria and to reorganize the Office of Construction. We believe that the key to VA construction planning is a policy decision on the portion of veterans with no service-connected disabilities that VA should plan to care for in its facilities. Once that decision is made, VA has the capability, either through its in-house staff or through its use of private

sector engineering firms, to plan and contract for the construction of new facilities to serve those veterans.

We also question the Commission's conclusion that changes in VA's construction policies would reduce the cost of VA hospital construction to a figure not appreciably higher than the cost of comparable nonfederal hospitals. We believe that because federally sponsored construction projects are subject to federal laws and regulations that do not apply to nonfederal projects, the Commission's cost savings are overstated. VA officials estimate that these laws and regulations add about 25 percent to a federally sponsored project.

(2) Hospital Issue #6: Control Over Facility Planning, Budgeting, and Staff: We agree with the Commission's recommendations that VA decentralize control over several hospital management functions, including day-to-day operations, planning, and budgeting, and that VA give medical center directors flexibility to adjust their operations to meet the needs of their patients. For example, medical center directors would benefit from the authority to hire staff, purchase equipment within certain limitations, and shift resources from one program area to another.

The Commission also recommended that VA propose legislation to eliminate congressional constraints on VA hospitals. We do not believe that the congressional constraints on VA hospitals have prevented them from operating efficiently. The requirement on the minimum number of operating beds was intended to ensure that the VA system would be available to back up the Department of Defense in time of war. The legislation covers both hospital and nursing home care beds. Therefore, VA is not prevented from converting underused hospital beds to nursing home care beds, which are less expensive to operate on the average. We are unaware of any legislative constraints on the number of nursing homes or occupied beds.

We agree that the Commission's recommendations concerning decentralization and incentives could be implemented within VA's existing authority. However, the recommendation concerning congressional constraints would take legislative action.

(3) Privatization Issue #4: VA Hospital Management: While we agree that VA could benefit from private sector management techniques, including use of construction managers on major building projects and improved management information systems, the Commission's recommendations

go beyond that. They appear to be inconsistent with current congressional policy, most recently stated in Public Law 97-306, that VA must maintain a comprehensive health care system. Further, as we stated in our views on Hospital Issue #5, both state cost containment efforts on contract nursing home care beds and the potential uneconomic conversion of underused hospital beds to nursing home care beds may limit VA's ability to rely on these options to meet its needs for nursing home care beds. We also believe the cost savings are overstated, although significant cost avoidance could be achieved if new facilities are not built or are downsized or if new equipment is not purchased.

## GAO Studies

(1) VA Justification for Construction of Nursing Home Care Units at Amarillo, Texas, and Tucson, Arizona (GAO/HRD-85-80, August 12, 1985): At the request of the Senate Committee on Veterans' Affairs, we reviewed the justifications provided by VA for the two nursing home care unit construction projects proposed in its fiscal year 1986 budget. We sought to determine whether VA adequately considered local needs and resources and less costly alternatives to new construction. In our opinion, the projects proposed for the VA medical centers in Amarillo, Texas, and Tucson, Arizona, are justified.

We found that VA, through its MEDIPP process, had documented the projected nursing home care needs, the projected availability of beds in community nursing homes and state homes to meet those needs, and the feasibility of converting existing space in the medical centers into nursing home care units.

(2) VA's Justification for the Number of Beds Planned for the Philadelphia Hospital and Nursing Home (GAO/HRD-85-69, June 13, 1985): The Senate Committee on Appropriations requested that we review VA's rationale and basis for determining that it needed a 538-bed hospital and a 240-bed nursing home as part of its proposed modernization of the Philadelphia VA medical center. We focused our review on (1) evaluating VA's 1981 and 1982 adjustments to the results of its computer model, which is the principal means by which VA projects its future bed requirements, and (2) determining whether VA adequately considered local needs and resources and alternatives to new construction for the proposed nursing home.

VA requires its planners to determine future hospital bed requirements by using a computer model and to justify any deviations from the model's results. We found that planners, when projecting the number of

beds needed in 1990, made several adjustments to the model's results to increase the number of beds for certain bed sections, but did not appropriately reduce the number of beds projected for the other bed sections. For example, the model divides the total projected surgical beds into acute and nonacute care beds. In 1982, planners believed that the model did not fairly project the number of acute surgical beds needed in 1990 and added 39 acute beds to the 121 projected by the model. However, they did not reduce the number of projected nonacute care surgical beds. This resulted in a double counting of beds requirements for some sections.

The proposed 240-bed nursing home appears to be needed. The planners followed VA Central Office guidance and adequately considered local needs and resources as well as alternatives to new construction.

(3) Analysis of Issues Concerning the Planned Modernization or Relocation of the Allen Park, Michigan, VA Medical Center (GAO/HRD-85-64, June 7, 1985): At the request of Congressman John D. Dingell, we reviewed a project proposed by VA to either modernize the existing medical center in Allen Park or build a new facility in Detroit. We found that although VA was in the early stage of planning, it was generally following its established guidelines and usual practices regarding this project. VA was considering and developing data its Administrator needed to decide on the most appropriate construction concept.

(4) VA's Methodology for Setting Priorities for Nursing Home Care Construction Projects for Fiscal Year 1986 (GAO/HRD-85-70, May 17, 1985): At the request of the Senate Committee on Veterans' Affairs, we reviewed the justifications for the seven nursing home care construction projects that were proposed by VA in its fiscal year 1986 budget request.

As part of its planning process, each of VA's 28 medical districts projects its nursing home care needs for 1990, the portion of those needs that VA would have to meet in its own facilities, and the number of beds the district would have available to meet those needs. The five VA districts in which the seven projects planned for fiscal year 1986 are located were ranked by their percentage of unmet need, and the individual projects from the districts with the largest percentage of unmet need received the highest priority.

We concluded that while this methodology was reasonable, improvements were needed in two areas. First, planners should consistently calculate unmet need among the districts. We found that when VA Central

Office planners calculated the number of beds VA expected to have available in 1990 in each district, they included projects authorized by the administration but not funded by the Congress for two districts but not for the other three districts. This inconsistency resulted in lowering the percentage of unmet need for these two districts. When these beds were excluded from the number of beds available and the unmet need was recalculated, the priority order of the projects changed. Second, VA planned for two projects for each of the two medical districts and, for each of the projects in the two districts, applied the same percentage of unmet need. However, if the Congress were to fund one of the projects from either of the two districts, that district's percentage of unmet need would drop and the priority of the remaining projects in the district would change.

VA is developing a new methodology for setting priorities for planned nursing home construction projects that should correct these problems for fiscal year 1987 and beyond. Under this methodology, VA would rank each project in a district and recalculate the district's unmet need percentage after each ranking. The beds in the higher priority projects would be counted as available in the target year, and this would lower the unmet need percentage for the other projects.

(5) VA Justification for Two Nursing Home Care Construction Projects in Its Fiscal Year 1985 Budget Request (GAO/HRD-84-66, May 15, 1984) and VA Justification for Construction of Nursing Home Care Facilities at Durham, North Carolina, and Prescott, Arizona (GAO/HRD-84-84, July 31, 1984): Senators Jake Garn of the Senate Appropriations Committee and Alan Simpson of Veterans' Affairs requested that we examine VA's justification for nursing home care construction projects in its fiscal year 1985 budget request. Specifically, we sought to determine whether VA Central Office planners and the medical districts adequately considered (1) local needs and resources when deciding on the need for additional VA-owned nursing home care units and (2) less costly alternatives to new construction. Of the seven nursing home care unit projects proposed in fiscal year 1985, we reported on the Alexandria, Louisiana, and Providence, Rhode Island, projects in VA Justification for Two Nursing Home Care Construction Projects in Its Fiscal Year 1985 Budget Request and the projects proposed for Durham, North Carolina, and Prescott, Arizona, in VA Justification for Construction of Nursing Home Care Facilities at Durham, North Carolina, and Prescott, Arizona. We did not report on the remaining three projects at San Juan, Puerto Rico; Murfreesboro, Tennessee; and West Los Angeles, California.

In our opinion, the projects proposed at Durham, North Carolina, and Alexandria, Louisiana, appear to be needed. The project proposed for the medical center in Providence, Rhode Island, does not appear to be needed. VA did not adequately consider local needs and resources which indicated that the Providence area will have an ample supply of community and state home beds to meet veterans' nursing home needs in 1990.

For the Prescott project, we found that VA data supported a need for a 60-bed nursing home care project rather than the 120-bed project requested in VA's fiscal year 1985 budget submission. In justifying the 120-bed project, VA did not adequately consider the number of community nursing home care beds potentially available in the Prescott service area by 1990. Our analysis of VA data showed that a 60-bed facility should meet VA's nursing home needs given the potential availability of community beds.

(6) Opportunity to Reduce the Cost of Building VA Medical Facilities (GAO/HRD-82-28, December 30, 1981): At the request of Congressman Ronald M. Mottl of the House Committee on Veterans' Affairs we reviewed VA's major construction program, concentrating on (1) the reasons for large numbers of changes to architectural/engineering design and construction contracts and (2) the costs these changes added to projects. Our detailed review of 10 completed projects that were built from the ground up showed that VA modified the 10 architectural/engineering contracts almost 200 times and the construction contracts more than 1,800 times. These modifications caused costs to increase by almost 19 percent, or $1.4 million, on the architectural/ engineering contracts and almost 7 percent, or $13.3 million, on the construction contracts. Among the reasons for the changes were modifications requested by DM&S to improve the delivery of health care and inadequate information given to an architectural/engineering firm for determining the space requirements for a project.

## VA Prior Studies and Actions

In its proposal to VA to conduct a study of VA's construction process, Booz, Allen & Hamilton presented a historical summary of studies and actions undertaken by VA on its construction process. The following is taken from that proposal.

- December 1969: A construction program analysis, conducted by the Administrator's advisory council, suggested ways to increase the level of professionalism of the staff within the Hospital Construction Service in DM&S.

- December 1971: The Chief Medical Director accepted the advice of a special committee of the hospital directors and recommended that the preliminary planning service, including cost estimating, be transferred from the Office of Construction to DMAS.
- December 1972: The assistant administrator for management and evaluation advised the Administrator that he found no unwarranted duplication of functions between the Office of Construction and DMAS. He further recommended that the Office of Construction be responsible for construction budgeting, estimating, and preliminary planning.
- February 1973: The construction program analysis was updated. Recommendations in the 1973 update included the transfer of estimating, budgeting, and preliminary planning functions from the Office of Construction to DMAS.
- September 1973: The Administrator issued a decision directing the transfer of the Health Care Facility Service (HCFS) in DMAS to the Office of Construction, effective October 1, 1973.
- January 1974: A study was published that showed the need to establish a set of comprehensive priorities for project selection in order to improve the project approval process and then to freeze the project scope. In addition, it was determined that the responsibility for the construction plan was not clearly defined.
- January 1975: DMAS was reorganized.
- July 1976: The Office of Construction sent a memorandum to the Administrator listing approaches to double the volume of construction with the given work force and suggesting a 50-percent reduction of in-house design work.
- Early 1977: A proposal was presented to the Administrator's transition team to either transfer the function of the Office of Construction to DMAS or to increase the role of DMAS in the construction program.
- October 1978: The research staff, Office of Construction, in association with outside contractors, prepared a study report pointing to a need for supporting documentation and references to be included in criteria proposals. The material was to help minimize delay and misunderstanding by reviewing offices during the approval process.
- February 1979: DMAS again requested that HCFS be transferred back to DMAS.
- 1979: The assistant inspector general for auditing prepared a report that addressed the construction approval process. Problems were identified in formulating requirements, scope, and cost estimates. The most significant delays were identified during DMAS development of data for various approval requests.
- July 1980: The Chief Medical Director informed DMAS field personnel of the establishment of the Facility Engineering and Program Analysis

Construction Office (FEPAC) which was to strengthen the Department's facility management and construction-related matters. FEPAC became responsible for representing DMAS on-site visits and took over the data package development HCFS had been doing.

- May 1980: The Administrator endorsed the DMAS reorganization. However, in recognition of the possible conflicts and/or duplications that FEPAC might create, the Administrator assigned the Associate Deputy Administrator the responsibility for detailing staff and functional statements, with the specific charge of being sensitive to any duplication of function between the Office of Construction and DMAS.
- September 1981: The Administrator disapproved the request for the transfer of HCFS from the Office of Construction to DMAS after soliciting comments from various VA elements.
- October 1981: Recommendations advanced by various organizational elements included (1) disapproval of the transfer of HCFS to DMAS, (2) creation of a separate office for facilities planning and development reporting to a deputy to the Administrator, and (3) a comprehensive construction program analysis to be conducted by an independent, objective group.
- December 1982: The Assistant Deputy Administrator for Program Planning and Evaluation provided a project protocol for an analysis of the reorganization of HCFS and FEPAC.
- 1983: In response to problems identified during the analysis of DMAS's 1981 request for the transfer of HCFS and because of insufficiencies in the construction planning process, the Administrator established a facility planning and construction committee charged with four specific tasks: preparation of fiscal year 1983 budget hearings; reassessment and updating of 1979 health care facilities planning guidance; fiscal year 1984 construction project validation; and analysis of VA's organizational structure and procedures for facility planning and construction.
- March 1983: The Chief Medical Director proposed a reorganization of HCFS.
- March 1983: The Assistant Deputy Administrator for Logistics recommended that the Office of Program Planning and Evaluation study the reorganization of HCFS.
- May 1983: The Deputy Administrator assigned the Office of Program Planning and Evaluation responsibility for assessing the alternatives regarding the placement of HCFS.
- July 1983: The Office of Program Planning and Evaluation recommended that HCFS remain in the Office of Construction and review its location as part of a larger study of the facility planning and construction process.

- December 1983: VA solicited proposals to study the VA's organization and procedures for constructing health care facilities.

  In March 1984, VA awarded a contract to Booz, Allen & Hamilton to conduct a comprehensive study of its construction program.

- April 1985: Booz, Allen & Hamilton presented to VA the last of three reports on the VA construction program. The first report described the health care facility construction process, while the second report evaluated the process. The final report contained recommendations.
- October 1985: VA took an initial step in implementing Booz, Allen & Hamilton's recommendations by proposing to merge the Office of Construction into DMAS.
- June 1986: The new VA Administrator circulated a draft proposal that would rescind the October 1985 proposal and create a new Office of Facilities under the Deputy Associate Administrator for Logistics that would be responsible for all VA construction planning, prioritization, design, and construction. Affected employees would be transferred to the new office on June 30, 1986, to effect a transition to the new organization, which would become final on October 1, 1986, the beginning of fiscal year 1987. The new office, not DMAS, would be responsible for construction project planning, prioritization, and the development of VA's 5-year facility needs assessment. DMAS would retain a review and concurrence function for the needs assessment.

# Excerpt From VA's Prioritization Methodology

As mentioned in chapter 5, VA recently developed criteria, weights, and scoring procedures for 18 construction categories that are used to evaluate and score projects within each category. Below is an example from A Methodology for Prioritizing Major Construction Projects that is followed to evaluate and rank clinical improvement projects.

**Figure VII.1: Clinical Improvement Projects**

CLINICAL IMPROVEMENT PROJECTS

A. Category Description: Clinical improvement projects are planned to provide enough space to allow for efficient functional operation of those services relating to direct patient care. Such direct patient care services include ancillary and support services. Due to the dynamic nature of health care delivery with its new techniques, expansions and reconfigurations become necessary to allow for the latest equipment or treatment modalities. The prioritization process for these projects consists of the review of four areas:

B. Criteria Descriptions:

1. Professional Delivery Capability: A medical center which has a clinical improvement project planned that has an excellent potential to recruit and retain professionals and has a strong affiliation with a medical school would be rated higher than a medical center that doesn't. While this would tend to favor tertiary, acute care facilities, there is a third factor to be added under this criteria, compatibility with the medical center's long range mission. If a facility (regardless of affiliation or desirability) has a clinical improvement project which will enhance health care delivery relating to the mission (as determined by MEDIPP), a higher score will be given. Also if it is determined that non-accomplishment of a particular project would hamper the facility's ability to meet its projected mission, a higher score would result. This criteria would allow for parity among effected VA medical centers regardless of size, location and current health care delivery methods.

2. Workload: All planned clinical improvement projects will be broken down into the individual services (Radiology, Laboratory, Pharmacy etc.). For each service, a measure of workload (patients treated, outpatient visits etc.) would be assigned. Based on these workloads, the space requirements (both current and projected) for an effected service are determined and a percent deficiency as compared to projected space needs is arrived at. Using different weights for direct patient care services, ancillary services and support services, scores are assigned. Those facility's that are most deficient, in the aggregate, will receive higher scores.

3. Functionality: There are several factors to be taken into consideration to determine functionality or, the functional arrangement or layout of a particular service. Using the VA's Space and Functional Identification (SFDI) System for effected services, the aforementioned functional arrangement or layout of a particular service is scored. The higher the score, the worse the functional layout and the higher the priority rank. Another factor under functionality is the adjacency of a particular service to another. An example is the nearness of laboratory service to surgical service. The more unacceptable the adjacency, the higher the rank. The third factor relating to functionality is accessibility for patients and staff. Services such as Radiology and Rehabilitation Medicine need to be accessible to the patients who need this care and the staff who provide this care. A gross score is arrived at by combining the sub-scores of the subfactors under this criteria.

Source: A Methodology for Prioritizing Major Construction Projects in the Veterans Administration, June 1985.

Figure VII.1: Clinical Improvement Projects (Continued)

CLINICAL IMPROVEMENT PROJECTS

4. Physical Deficiencies: With regard to the overall areas covered by the project compliance or non-compliance with life safety codes, patient privacy codes and handicapped access codes are analyzed. Those with a lesser degree of compliance receive a higher ranking. If a facility has not had major expansion or modernization within the last ten years it would receive a higher rank than a facility that has. If a building included in the project is over 40 years old it would receive a higher rank. Serious overall deficiencies in the physical plant (Electrical, HVAC, Plumbing, Gas, etc.) receive higher consideration as will a facility with an effected area cited by the Joint Commission on Accreditation of Hospitals (JCAH) or by other professional accreditation bodies.

C. Criteria Weights:

| Criteria | Weight |
|---|---|
| 1. Professional Delivery Capability | 3.8 |
| 2. Workload | 9.4 |
| 3. Functionality | 8 |
| 4. Physical Deficiency | 9.6 |

D. Data Sources:

1. H-08-9 Space Criteria
2. Internal and External Reviews (JCAH, SERP, AALC)
3. MEDIPP Planning Efforts
4. VA ACMD for Academic Affairs (pertaining to affiliations)
5. SFDI

E. SCORING: (Attached)

**Figure VII.1: Clinical Improvement Projects** (Continued)

| | CRITERIA | WEIGHT | A SCORE | A WT. SCORE | B SCORE | B WT. SCORE | C SCORE | C WT. SCORE |
|---|---|---|---|---|---|---|---|---|
| A) | Professional Delivery Capability | 3.8 | 7 | 26.6 | 3 | 15 | 7 | 26.6 |
| B) | Workload | 9.4 | 9 | 84.6 | 8.3 | 78 | 10 | 94 |
| C) | Functionality | 8 | 4 | 32 | 4.9 | 39.2 | 2.8 | 22.4 |
| D) | Physical Deficiency | 9.6 | 8.7 | 83.52 | 7.4 | 71.04 | 6.1 | 58.56 |
| | TOTAL | 30.8 | | 226.7 | | 203.2 | | 201.5 |
| | STANDARDIZED SCORE | | | 7.36 | | 6.54 | | 6.48 |
| | RANK | | | 1 | | 2 | | 3 |

Professional Delivery Capability

| | Undesirable 1 Pt. | Moderate 3 Pts. | Highly Desirable 10 Pts. | |
|---|---|---|---|---|
| Potential for Recruitment/Retention of Professionals | None | Nominal | Strong | |
| | 1 Pt. | < 2 Pts. 3 Pts. > | < 4 Pts. 5 Pts. > | |

Medical School Affiliation
(Using determination assigned by Academic Affairs (14))

Compatibility with VAMC Long-range mission - Will this project contribute significantly to the MEDIPP - determined, future mission of the VAMC? Conversely, will the non-accomplishment of this project have a negative impact on the VAMC ability to provide the quality health care associated with the designated mission. As determined by professional judgement, an affirmative answer will receive 10 points. No impact will receive 1 point.

TOTAL POINTS = SCORE ÷ 25 (MAXIMUM POINTS) X 10 = SCORE

Workload
1) Determine patients treated and outpatient visits (current and projected) for VAMCs under consideration.
2) See chart for specific program areas and which measure of workload should be used.
3) Determine square footage required (total) for the workload as applied to each program area.
4) Determine % deficiency with regard to current space vs. projected space needs. Multiply this answer by 10.

**Figure VII.1: Clinical Improvement Projects** (Continued)

5) Weight points assigned according to accompanying rule: Weight 3 for direct patient care services, Weight 2 for patient care ancillary services and Weight 1 for patient care support and administrative services. Multiply percent deficiency by applicable weight..
6) Divide the total weighted points for each VAMC project by the sum of all weights assigned to programs under project.
7) Score for this project is the result obtained under step 6.

Functionality

1) Using the list of program areas covered under the scope of each project in question, determine the quantified answer to each of the following questions:

| | Acceptable | Mid-Point | On/Average Acceptable | Mid-Point | Not Acceptable |
|---|---|---|---|---|---|
| • Adjacencies to services associated with that program. | 1 pt. | 2 pts. | 3 pts. | 4 pts. | 5 pts. |

| | 0-.99 | 1.0-1.99 | 2.0-2.99 | 3.0-3.99 | 4.0-4.99 |
|---|---|---|---|---|---|
| o SFDI functional component score. | 1 | 2 | 3 | 4 | 5 |

| | Acceptable | Mid-Point | On/Average Acceptable | Mid-Point | Not Acceptable |
|---|---|---|---|---|---|
| • Accessibility for patient & staff. | 1 pt. | 2 pts. | 3 pts. | 4 pts. | 5 pts. |

2) Add resulting scores under each question for individual programs. Maximum score will equal 15.

3) Divide each score from no. 2 by 15. Multiply this answer by 10.

4) As in step 5 under "workload", multiply program scores by the appropriate weights. Add up all weighted scores for project.

5) Divide the total weighted points for each project by the sum of all weights assigned to programs under project.

6) Score for this project is the result obtained under step 4.

**Figure VII.1: Clinical Improvement Projects** (Continued)

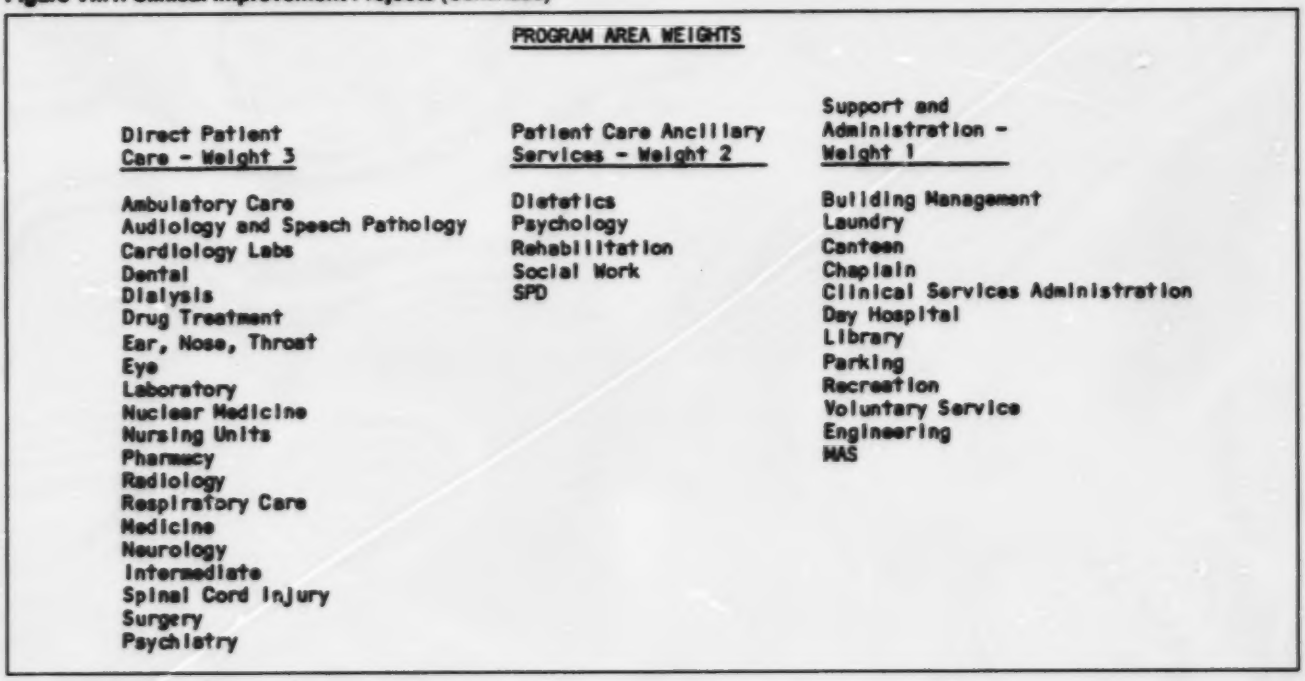
Physical Deficiencies

With regard to the overall areas covered by the project being evaluated, the following questions should be answered:

| | | | | | |
|---|---|---|---|---|---|
| | Substantial Non Compliance 10 pts. | Mid-Point 7 pts. | Moderate/Avg. Compliance 5 pts. | Mid-Point 3 pts. | Overall Compliance 1 pt. |
| Life Safety Compliance<br>Patient Privacy Code Compliance<br>Handicapped Access Code Compliance | | | | | |
| Major Expansion/Modernization within last 10 years | Yes (1 pt.) | | | | No (10 pts.) |
| Age of Building(s) Involved Over 40 Years | Yes (10 pts.) | | | | No (1 pt.) |
| | Serious Overall Defic. 10 pts. | Mid-Point 7 pts. | Overall Avg. Defic. 5 pts. | Mid-Point 3 pts. | Overall low Level Defic. 1 pt. |
| Other Plant Deficiencies (Electrical, HVAC, Plumbing, Gas, etc.) | | | | | |
| | All Program Areas Cited as Defic. 10 pts. | Mid-Point 7 pts. | Half of Programs Cited 5 pts. | Mid-Point 3 pts. | Number of Programs Cited 1 pt. |
| Cited by JCAH and/or other professional accrediting bodies. | | | | | |

TOTAL POINTS ÷ 70 (MAXIMUM POINTS ) X 10 = SCORE

**Figure VII.1: Clinical Improvement Projects** (Continued)



PROGRAM AREA WEIGHTS

| Direct Patient Care - Weight 3 | Patient Care Ancillary Services - Weight 2 | Support and Administration - Weight 1 |
|---|---|---|
| Ambulatory Care | Dietetics | Building Management |
| Audiology and Speech Pathology | Psychology | Laundry |
| Cardiology Labs | Rehabilitation | Canteen |
| Dental | Social Work | Chaplain |
| Dialysis | SPD | Clinical Services Administration |
| Drug Treatment | | Day Hospital |
| Ear, Nose, Throat | | Library |
| Eye | | Parking |
| Laboratory | | Recreation |
| Nuclear Medicine | | Voluntary Service |
| Nursing Units | | Engineering |
| Pharmacy | | MAS |
| Radiology | | |
| Respiratory Care | | |
| Medicine | | |
| Neurology | | |
| Intermediate | | |
| Spinal Cord Injury | | |
| Surgery | | |
| Psychiatry | | |

**Figure VII.1: Clinical Improvement Projects** (Continued)

MEASURES OF PROGRAM WORKLOAD

| Bed Dependent Services (A) | Bed Independent Services (B) | Both |
|---|---|---|
| • Patients Treated (Patient Days) ÷ Current Support Capability | • Outpatient Visits ÷ Current Support Capability | (A + B) ÷ 2 |
| Building Management | Ambulatory Care | Clinical Service Admin. |
| Canteen | Audiology and Speech Path. | Drug Treatment |
| Chaplain | Day Hospital | Ear, Nose, Throat |
| Cardiology Labs | Dialysis | Eye |
| Dental | Parking | Laboratory |
| Dietetics | | Nuclear Medicine |
| Library | | Nursing Units |
| Recreation | | Pharmacy |
| Respiratory Care | | Psychology |
| SPD | | Radiology |
| Warehouse | | Social Work |
| Voluntary | | Medicine |
| Intermediate | | Psychiatry |
| Spinal Cord Injury | | Neurology |
| | | Surgery |

# Request Letter

[redacted]

United States Senate

COMMITTEE ON VETERANS' AFFAIRS

WASHINGTON, D.C. 20510

August 10, 1984

Charles A. Bowsher
Comptroller General of the
United States
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Bowsher:

As Chairman of the U.S. Senate Committee of Veterans' Affairs, I have become increasingly concerned about the financial management systems and processes that support the annual resource requests of the Veterans' Administration (VA). It would be of great assistance to me and the Committee in reviewing the VA's budget requests if we had an understanding of the accounting and management information systems and decision processes used to determine those requests.

Specifically, I request that the General Accounting Office review the financial management systems and processes in VA and provide the Committee with

- a description of the major financial management systems in VA,
- an analysis of the major strengths and weaknesses of these systems,
- a description of the central financial management processes, formal and informal, in VA, and
- an analysis of these processes and whether they and their supporting systems are sufficiently integrated to form a basis for sound financial management.

In reviewing VA's central financial management systems and processes, I ask that you pay particular attention to how VA top management sets priorities for construction projects, and distinguishes between service-connected and non-service connected needs in establishing budget priorities and requests.

Charles A. Bowsher
August 10, 1984
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In order to be of optimal use to the Committee, the descriptions should be completed in time for our February 1985 hearings on VA's Fiscal Year 1986 budget request. In order to answer questions regarding this request and to schedule the completion of the analysis portion of the review, please contact Julie Susman (224-9126) of the Committee staff.

With warm regards,

Sincerely,

Alan K. Simpson
Chairman

AKS:vpr

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